The Canadian Medical Association Journal

Vol. 48 TORONTO, MAY, 1943 No. 5

A SUBMISSION RESPECTING HEALTH INSURANCE

PRESENTED TO THE SPECIAL COMMITTEE ON SOCIAL SECURITY OF THE HOUSE OF COMMONS

By The Canadian Medical Association
April 6, 1943

Presented by Dr. T. C. Routley, General Secretary, who was introduced by Dr. A. E. Archer, President of the Association.

A BRIEF introductory note on the history of the Association was given for the benefit of the lay members of the Committee. Dr. Routley then continued.

In 1909, the Association became incorporated by Act of Parliament of the Dominion of Canada. Each of the nine Provinces of Canada has a Provincial Medical Association which is a federated Division of the Canadian Medical Association. This means that the Canadian Medical Association, in a most democratic fashion, represents and speaks for nine Provincial Medical Associations of Canada.

Membership in the Canadian Medical Association is voluntary, every Canadian doctor in good standing in his community being eligible for membership. There are registered in Canada approximately 10,600 doctors, 8,500 of whom are English speaking and approximately 2,100 French speaking. Of this total number, the C.M.A. has 6,388 members, of whom over 300 are French speaking.

It will be observed that our French speaking membership is numerically and relatively small. Why is that? There are a number of reasons which will also apply to other national organizations in Canada, but the most notable reason is the fact that the *Canadian Medical Association Journal*—a monthly publication—is printed almost entirely in the English language and therefore does not attract our French speaking medical confrères who have splendid medical journals published in their own language. There is much evidence, however, to support the statement that the Canadian Medical Association in the Province of Quebec is growing in influence and favour. In the Province of Quebec a joint committee representing the various medical organizations—the Quebec Division of the Canadian Medical Association, the College of Physicians and Surgeons of Quebec and la Fédération des Sociétés Médicales—has been formed for the express purpose of studying Health Insurance and obtaining medical opinion on the subject. This committee has authorized the Canadian Medical Association to act as its spokesman in the matter of health insurance.

In respect to great national problems such as Health Insurance, the Canadian Medical Association has not been content in the other Provinces to canvass its members only. On the contrary, the medical profession of Canada as a whole has been invited to make its voice heard in respect to these broad questions, to the end that it can be said without fear of contradiction, that the representations which the Canadian Medical Association now makes to the Parliamentary Select Committee express the considered views of the medical profession, as a whole throughout the Dominion.

PURPOSE OF SUBMISSION

The purpose of this submission is:

1. To emphasize that adequate medical care is essential to the welfare of Canada;
2. To review certain factors which handicap the medical profession in providing adequate medical care;
3. To point out that highly desirable preventive and public health services are now inadequate;

4. To indicate the position of the Canadian Medical Association with respect to State Health Insurance;
5. To set forth features which should be included in any plan of Health Insurance;
6. To point out the desirability of avoiding certain weaknesses observed in plans of Health Insurance in other countries;
7. To make general comments with respect to a number of features to be considered in setting up any plan of Health Insurance;
8. To show that Health Insurance can suffice to meet the medical needs of sparsely settled communities;
9. To discuss possible future developments in the years to come in the provision of good health care.

I. Adequate Medical Care Essential

It is most essential to the welfare of our people that the medical care provided be not only of the highest standard but be readily available to all. Although our present system of providing medical care is characterized by many desirable features worthy of retention, it is recognized that there are a number of ways in which provision is not made for the full needs of the people at the present time.

To achieve its full destiny Canada must have healthy citizens. Our people can only enjoy full and vigorous health if there be provided for them adequate facilities for medical care (preventive and curative) of the highest standard, which will be readily available to all, irrespective of geographic location and financial status.

It would appear that certain changes are necessary, and to achieve this result the medical profession stands ready to co-operate, for the welfare of the people has always been its primary objective. At the same time the profession is proud of the achievements of those who have laid the foundations of medical practice over the centuries. The medical profession has served the people well—caring for the poor, placing patient before self whether it be in time of plague or battle, developing medicine from discovery to discovery, fostering research, preserving what is perhaps the highest code of ethics in the world and attracting to its ranks many of the keenest minds of each generation. It is in the interests of our people that these features of medical practice be preserved.

II. Handicaps or Weaknesses of the Present System

(a) The costs of sickness have become an increasing burden to many people, particularly those of moderate income, and have frequently prevented them from taking proper advantage of early diagnosis and treatment.

The extent and value and accuracy of medical knowledge and skill have increased tremendously, but at the same time the *cost* of this service has also become an increasing burden. The major increase has been due to the increasing complexity and delicacy of diagnostic methods and to the increased utilization of intricate apparatus and highly skilled personnel in treatment.

The diagnostic and "laboratory" equipment of Confederation days was limited to a stethoscope and (sometimes, not always) a thermometer. This equipment was the forerunner of the elaborate, complicated and costly, but highly accurate, equipment of our x-ray, pathological, biochemical and other laboratories. The number of hospital beds in Canada has increased from about 400 at the time of Confederation to over 100,000 at the present time. The hospital investment in Canada is of some $250,000,000. In five or six decades the cost of providing hospital service which would be abreast of expanding medical knowledge has gone up from 75 cents per patient per day to an average of around $3.00 per patient per day. The cost of medical education has increased five or six fold and the time required for it has been more than doubled.

Medicine has ceased to be a science in which any one man can expect to be able to offer full service. For special diagnosis or for certain curative measures, individuals with special knowledge in selected fields must be called in. This has increased accuracy of diagnosis and efficiency of treatment but has added to the cost.

True, it could be pointed out that the results attained have more than compensated for additional costs. Better and earlier diagnosis and more effective treatment have shortened illnesses and saved lives beyond computation. Actually, despite increased costs of hospitalization, certain specific illnesses, such as pneumonia, gall bladder operations, etc., cost the patient less for hospitalization today than at the turn of the century, due to a greatly re-

duced period of hospitalization. Moreover, costs of medical care have not risen as rapidly over the years as has the general cost of living. Nevertheless, owing to the unpredictability of most illnesses and accidents and the reluctance or inability of most people to budget for illness, some plan is necessary for relieving the individual of the burden of the cost of illness at the time when he can least afford to pay these costs.

The section of the community which has suffered most from the increase in cost is the great mass of honest thrifty folk of moderate means. The so-called "indigent" has usually received the medical care he has needed and illness has seldom created a grave financial problem for the well-to-do. But for the man of low or moderate income who desires to pay his way, the possible costs have definitely deterred him in many cases from seeking early advice or agreeing to the proper treatment.

Voluntary medical and hospitalization plans. In an effort to alleviate the financial burden of sickness, a number of voluntary medical and/or hospitalization plans have been set up. The better hospitalization plans are known as "Blue Cross Plans". These voluntary contributory plans for medical care, or hospitalization, have been of much assistance to their members when overtaken by illness. Unfortunately, there are many areas where these plans do not operate; also, being of a voluntary nature they do not cover all of the employed people of moderate means. Moreover, they seldom provide a complete service nor do they make provision for those who are unable to make any contribution.

(b) The distribution of medical services in the various parts of Canada, urban and rural, is not as it should be if all of our people are to receive full and adequate medical care.

This applies also to health services in general.

A major problem in medical distribution is that of providing adequate medical care in rural districts. Present wartime conditions are abnormal and, therefore, cannot be taken as a basis of discussion, but long before the war it was obvious that there was a heavy concentration of medical practitioners and of health services in general in the urban areas. Now with large numbers of rural doctors in the armed forces, the problem is much more acute.

This situation not only makes active treatment difficult to obtain, but it interferes with preventive services. For years infant mortality has been much higher in rural than in urban areas; the same applies to tuberculosis.

Some concentration in cities logical. It should be pointed out, however, that, under any system, some concentration of medical personnel must be expected. Specialists could not be located other than in centres large enough to afford them an adequate clientèle; although located in centres, they serve both rural and urban patients. As the more technical or specialized diagnostic and curative procedures can best be done in hospitals, patients must continue to be taken to hospital for such purpose. Frequently the equipment or skilled personnel is only available in large urban hospitals. As it is neither possible nor advisable to set up fully equipped and staffed hospitals in all rural communities, many rural patients will continue to be treated in the larger centres, irrespective of any plan which may be put into effect.

Moreover, it has long been noted that many patients in rural areas, even though a competent physician be available in the community, will drive beyond him to the city for diagnosis or treatment. Resulting from the advent of the motor car and good roads, many doctors formerly able to make a living in a country community have been forced to move to larger centres.

Broad statements to the effect that a large number of rural municipalities are without medical care may convey an erroneous impression. A township or a municipality may not have a resident doctor, yet just beyond the borders of that area might be located several doctors serving the district in question with fully adequate care. Motor cars, improved highways and telephones have completely changed the former conception of what constitutes the geographic area for a normal rural practice.

(c) Many communities have failed to organize themselves in such a manner as to make the best use of existing legislation or to initiate their own health services.

Many communities have failed for various reasons to organize themselves to take full advantage of existing legislation which would

permit them to develop much needed health services. For instance, in rural areas with inadequate voluntary non-profit hospitals, more municipal or "union" hospitals would have greatly improved health services. For various reasons, among which might be cited economic conditions, lack of understanding and leadership, and even indifference, the public health services in many areas have often been but nominal, or even entirely absent.

III. Preventive Services Inadequate

The present program of preventive medicine in the country is far from adequate. Our major emphasis in the past has been on the cure of disease—on *negative* health, as it were. There should be more emphasis in the future on *positive* health, on preventive medicine and public health. It is less costly to prevent disease than cure it, yet our progress in this direction, although steady and gratifying, has been far too slow.

In making these statements there is no implication in the slightest that the provincial, federal and municipal departments of health have not done excellent work. Actually they have accomplished much, frequently under considerable handicap. But the results have been much less than could have been achieved had adequate funds been available. It is unfortunate that, while in the past money has been freely available for so many other purposes, yet so much difficulty has been encountered in obtaining adequate funds for effective programs of preventive work and public education on health matters.

HEALTH INSURANCE

IV. The Position of the Canadian Medical Association with Respect to Health Insurance

Realizing the situation, as already set forth, and that solutions for these difficulties must be found, the Canadian Medical Association has been actively studying the subject of Health Insurance for nearly fifteen years. In 1934 an outline of a possible plan of Health Insurance was drawn up and adopted by the Council of the Association. Studies continued and the principles upon which this outline was based have been reviewed and altered, or reaffirmed, from time to time up to and including the annual meeting of the Association in June, 1942.

Principle of health insurance approved. At a largely attended special meeting of the Council of the Canadian Medical Association held in Ottawa, January 18 and 19, 1943, the subject of Health Insurance was again considered. Previously the Council had said that if Health Insurance were to be established in Canada it should be along certain lines, but had refrained from recommending it or opposing it. At this time, and for the first time, the Council went farther. In Ottawa in January, 1943, the Council endorsed the principle by passing the following resolution:

Whereas the objects of the Canadian Medical Association are:

1. **The promotion of health and the prevention of disease;**
2. **The improvement of health services;**
3. **The performance of such other lawful things as are incidental or conducive to the welfare of the public; and**

Whereas the Canadian Medical Association is keenly conscious of the desirability of providing adequate health services to all the people of Canada; and

Whereas the Canadian Medical Association has for many years been studying plans for the securing of such health services;

Therefore be it Resolved That

1. **The Canadian Medical Association approves the adoption of the principle of Health Insurance.**
2. **The Canadian Medical Association favours a plan of Health Insurance which will secure the development and provision of the highest standard of health services, preventative and curative, if such plan be fair both to the insured and to all those rendering the services.**

V. Features Which Should be Included in Any Plan of Health Insurance

We visualize for Canada a system of Health Insurance which will be more all-inclusive, efficient and sound than any which has ever been devised and operated anywhere. It should place much emphasis on the prevention of disease and the development of a high degree of physical fitness, and should also include complete modern diagnostic and curative services. Possibly this full program cannot be immediately instituted in its entirety, because of shortage of trained personnel and of institutions, and possibly because of cost, but the full service should be visualized and planned for. Medical knowledge in the prevention and cure of disease is far ahead of the means for its general utilization by the public.

It is obvious, too, that any plan of Health Insurance which is not supplemented by a program to ensure better nutrition, better housing and the reduction of worry and anxiety, particularly for those of low and uncertain income, will fail in its objective.

A. Adequate prevention and public health provision:

(i) Reorganization of public health and preventive services is necessary to place more responsibility for various procedures on the family practitioners. Their services must be available for and integrated with the public health officials' program. The family must be the unit and the family doctor the first line of defence in this program;

(ii) Our rapidly expanding knowledge of nutrition should be translated into action—adequate diets should be available to all. This implies not only a vigorous educational program but also a degree of economic security to which reference has previously been made;

(iii) The present knowledge of the value of *inoculations, vaccinations and other immunizing and diagnostic procedures* in the control and eradication of disease should be fully utilized by the extension of public health services, operating with the assistance of the general practitioner;

(iv) General programs of *hygiene* and *sanitation* must be promulgated and carried out;

(v) *Periodic examinations* at suitable intervals should be available to all. The early recognition of disease is the greatest weapon in its mastery;

(vi) *Complete examinations of all children* should be linked with the means for correcting any deficiencies. This would greatly improve the health of our children;

(vii) A more general application of our present knowledge respecting goitre control could bring about a definite reduction in the frequency of this disease in affected areas. All such areas in Canada could be determined by careful study;

(viii) A well organized program to control venereal disease is necessary throughout the country;

(ix) Fifty thousand Canadians are now suffering from cancer; more than 12,000 die of cancer annually, yet many, if diagnosed and treated early, can be cured. An aggressive program to combat cancer should be an integral part of health insurance.

(x) Tuberculosis might be eradicated from Canada in 25 years if facilities were provided for its early recognition and efficient control;

(xi) *Maternal welfare:* Maternal deaths and disabilities have been markedly lessened, but could be reduced still further by a maternal welfare plan which would incorporate all those features which have proved to be of value;

(xii) *Full dental care for children* is a prerequisite to good health;

(xiii) *Pre-employment examinations* would help to direct individuals into employment which would be most suitable for them.

A progressive program for the improvement of the health and physical development of children and young people by supervised playgrounds and controlled exercises and physical fitness programs is desirable. Also, the treatment of certain conditions is closely linked with the housing problem, and some integration of authority should be planned in this respect.

Such a general program would greatly assist in the fight to eliminate certain diseases such as diphtheria, whooping cough, tuberculosis, rickets, typhoid fever and smallpox, and would assist in the reduction in the frequency of many others, such as certain forms of mental disease, rheumatic heart disease, goitre, venereal disease and cancer.

As years pass the cost of curative services might be expected to materially decrease as disease is controlled and physical fitness increased.

B. General practitioner services: The fundamental service should be general practitioner service. When medical services are needed, such should be available without cost to the patient at the time. The individual should have the right to choose his medical adviser, and vice versa.

C. Specialists and consultants: The science of medicine has progressed so rapidly that many

conditions call for investigation and treatment by adequately trained and recognized specialists and consultants. This service is invaluable and must be freely available.

D. Additional diagnostic services: There should be available for all the people whatever diagnostic aid would be of value. This should include laboratory, radiological and other scientifically recognized diagnostic procedures and should also include consultant services. If necessary, diagnostic facilities should be set up to serve designated areas. In some cases the pooling or centralizing of some of these diagnostic services could reduce overhead and consequent cost.

All necessary diagnostic aids which have been proved to be of scientific value should be available for all the people.

E. Hospitalization: Hospitalization accommodation should be available to all who need it and for such time as they need it.

F. Nursing: A visiting nurse service should be available in the home on the order of the medical adviser. Full-time nursing service should be made available upon the authorization of the regional medical adviser.

G. Drugs and appliances: Drugs and pharmaceutical preparations, as authorized in an official formulary which could be prepared, should be available upon the order of the medical adviser. Appliances, such as spectacles, crutches, artificial legs, etc., should be available within reason when authorized.

H. Dental services: Dental prophylaxis and care with a stipulated limit should be available to all.

I. Problems needing special attention: There is considerable need for the development of adequate facilities for the rehabilitation of those partially incapacitated by physical and mental illness. Such a program would be both humanitarian and economically sound. There is need, too, in every province in Canada for more homes for the care of the aged and the infirm. This also applies to the care of those who are chronically ill.

VI. Weaknesses Observed in Plans of Health Insurance Elsewhere Should be Avoided

In the setting up of any Health Insurance measure in Canada, it is highly desirable that we profit by the experiences of other countries. Their Health Insurance enactments have been studied carefully by our Association. To obtain first hand information, the Canadian Medical Association sent its General Secretary to Europe in 1937 to study Health Insurance in operation.

The following weaknesses and omissions observed there and elsewhere should be avoided in Canada:

(a) Limited range of service in some countries: A plan which provides for general practitioner service only does not provide a complete service. Such arrangement is not fair either to the patient or to those who must render specialist service. By not providing for hospitalization, patients are either unable to obtain needed hospitalization, or must bear heavy financial burdens, or must accept charity. All too frequently an insurance scheme thus becomes a charity scheme.

(b) Dependents not covered in some plans: To omit from benefits the dependents of the insured, still requires the breadwinner to finance the major portion of sickness in the average family (somewhat over two-thirds of the total hospitalized illness in a family with two children and a still higher proportion—nearly four-fifths—in the case of home and office practice).

(c) "Indigents" not covered in some countries: The inclusion only of those who are employed, or who receive up to a certain income, still makes no provision for the varying but usually large number who are in the group frequently referred to as "indigent" or "near-indigent". From the viewpoint of national health, and particularly from that of preventive medicine, it is most important that this group be covered.

(d) Friendly societies as "carriers" found undesirable: The utilization of Friendly or Benevolent Societies as carriers under the Act in one large national plan has had unfortunate results. Although politically expedient at the time to obtain support for the measure, it has now become obvious that these carriers have introduced a third party between patient and physician and between citizen and government. Over the years these carriers have developed large surpluses and have now become so powerful that, through their membership, they can dictate to the government in insurance matters. In another country they have "played

politics'' and have been more concerned with the competition for members than with the medical services rendered.

(e) Inadequate payment for services rendered: Inadequate payment for services rendered can be of serious concern to the general public, for eventually it will result in a lowering of the quality of the service rendered. Physicians, dentists, nurses, technicians and all those rendering specialized or expert service should be compensated in accordance with their investment of time and money in initial and post-graduate training, and with their responsibilities and the arduous nature and dangers of their work. It is vitally important to the health of the nation to ensure that medicine of the future shall continue to attract a large percentage of the keenest young men and women of each generation.

(f) Inadequate provision for necessary diagnostic services: Some plans do not make provision for adequate diagnosis, such as laboratory and x-ray examinations and consultant services. When required these must be paid for by the patient or, as is frequently the case, be provided on a charity or part-pay basis by hospitals and consultants. This is not conducive to early diagnosis, effective treatment and prompt recovery.

(g) Lack of democratic principles in some plans: In one well established plan in a major European country the methods adopted are exceedingly dictatorial and bureaucratic and permit the individual member or those rendering the service little, if any, opportunity for stating grievances or correcting omissions or abuses. Health Insurance should be a well integrated partnership, with all parties concerned—the insured, those rendering the services, and the state — given a voice in its direction.

(h) Preventive medicine and Public Health not emphasized in other plans: Of utmost importance, most existing plans of Health Insurance do not lay sufficient stress upon preventive medicine. The emphasis has been largely upon curative medicine. Canada has an opportunity to develop a system of Health Insurance which, by the inclusion of the preventive features already mentioned, can not only set new standards of health legislation, but can have an effect on our future national health far beyond our comprehension.

VII. ADDITIONAL FEATURES TO BE CONSIDERED IN ANY PLAN OF HEALTH INSURANCE

(a) In developing a Health Insurance plan in Canada great care should be taken to ensure that the proposals are sound and sufficiently comprehensive.

The medical profession recommends a complete service of high standard. To the medical profession it will mean great and in some respects unwelcome changes. We are, however, willing to assist in its formation and its operation, *provided* that it will secure for all the insured a high standard of service, as high or higher than has been available in the past, and will be fair both to the person insured and to those rendering the services.

(b) Should Health Insurance be a strictly federal measure or should it be a provincial measure, operating under federal enabling legislation and with federal assistance?

We realize that there are advantages in a single nation-wide measure of Health Insurance. It does appear, however, that there are certain factors which would indicate that Health Insurance should be introduced on a provincial basis. Provincial plans should be co-ordinated by federal legislation of an enabling nature. Such federal legislation should outline those standards to which provincial enactments would be expected to conform in order to receive federal subsidies. Our reasons are as follows:

1. Local conditions, such as costs of living, needs for and costs of services, incomes, etc., vary in different provinces.
2. It would be much more difficult to draft a federal measure acceptable in detail to all parts of Canada, than to prepare a federal measure which would outline the general provisions only and leave many of the details to be determined in the individual Province.
4. By maintaining uniformity in the general structure of the plans to be developed in the different Provinces, the problems of later unification, should that prove desirable, would be simplified.
5. Revision of the British North America Act would not be necessary.

Some form of federal control essential for uniformity: If Provincial autonomy is to be maintained as suggested above, it is extremely

important that a sufficient degree of federal control be retained. This control should be limited to such matters as the extent and the standards of the services, as indicated previously. It is important, however, that control be maintained, as it is only through this means that a satisfactory degree of uniformity can be obtained. Unless there is considerable similarity in methods and program in matters of disease prevention and control, the results from the national viewpoint will be jeopardized.

(c) Administration.

FEDERAL. If the Federal legislation passed be of an enabling nature, it would follow that the function of the Federal government with respect to Provincial enactments would be broadly to supervise the operations of these Provincial acts in order to determine the eligibility of the Provinces to receive the Federal subsidies and other assistance provided under the Act.

On this basis it is recommended that the Federal administration be under the Minister of National Health, with an Advisory Dominion Council on Health Insurance.

If Federal administration is to be carried out within the Department of Pensions and National Health it should be under a Health Insurance Division, with a director in charge.

PROVINCIAL. In the Provinces it is strongly recommended that the plan come under a NON-POLITICAL INDEPENDENT COMMISSION which might be responsible to the legislature through the Provincial Minister of Health. Because of the vital nature of health care the Canadian Medical Association considers it highly desirable to remove these important health services from the possibility of interference in the continuity of services or personnel by the vicissitudes of political change.

We believe, moreover, that the Commission should be so constituted, appointed and empowered that it will possess ample freedom of action and that its members will be representative of and preferably nominated by the various professional and other groups interested in the operation of the Act.

(d) Certain details might wisely be left to the Province.

Among these might be: (i) The income level (which might be high enough to include all the residents, or set at an agreed level which might vary in the various Provinces) below which the residents would be included under an obligatory plan; (ii) The rate and method of payment for all services, professional and institutional; (iii) The best means of obtaining full preventive and public health services within the Province concerned; (iv) The particular means which might be necessary to safeguard the basic necessity of maintaining adequate teaching services in connection with Medical Faculties and teaching hospitals within the Province.

(e) The patient of little or no income should be included.

Those patients, frequently termed "indigents", who cannot pay for adequate health services should be included. It would be grossly unfair, not only to the public, but also to those rendering the health services, to omit this group from the benefits of the plan. Provision for the inclusion of such patients should be specifically made in the Federal enabling and Provincial Acts.

(f) The plan should be on a contributory basis.

The principle of having those participating in the benefits contribute to the fund would seem to be sound. The individual who shares in the cost of providing the benefits is much more likely to co-operate in keeping down unnecessary calls upon the fund. For those not employed by others, a basis of direct assessment could be worked out.

(g) Remuneration.

The remuneration of those rendering the services required under this plan should be reasonable and in conformity with the high standards of service expected of them. In the case of the medical practitioner (general practitioner), it is obvious that some variation in the basis of remuneration may be necessary in different areas. In some areas a "fee-for-service" basis may be desirable; in others a "capitation" basis (so much per annum per individual on a panel, irrespective of the amount of service rendered) may be preferable; in other areas, particularly certain rural areas where the population is small and scattered, a "salary" basis, or a combination of any two of these three alternative methods may prove desirable. Because of this situation

it is recommended that the method of remuneration, as well as the amount, be left for decision in the individual Province after consultation between the Commission and representatives of the medical profession.

In the case of the specialist or consultant it would seem necessary to follow a fee-for-service basis.

(h) Medical education must be maintained at a high standard.

Fully trained medical personnel in sufficient numbers are absolutely necessary to any plan of general Health Insurance. Such are necessary for the health welfare and the future of the nation. If anything happens to the proper teaching of succeeding generations of doctors, scientific medicine dies and with it declines the health of the nation. The truth of this assertion is obvious.

Heretofore clinical teaching has been carried on in wards set aside for that purpose; these have usually been the public wards of our large teaching hospitals. The hospital service has either been free to the patient or at minimal rates and the medical attention has been without charge. Although the patients have been available for the bedside discussion and demonstration of methods of examination and treatment, the service has been of the highest standard of excellence and always with the complete co-operation of the patients concerned. Under a Health Insurance plan in which there would be no longer any group of individuals who would receive so-called "free treatment", there is a possibility that opportunities for clinical teaching may be reduced. While it is anticipated that the long recognized excellence of the quality of diagnosis and treatment in teaching hospitals may alone suffice to ensure a sufficient number of patients, it must be recognized that it is distinctly in the public interest that the popularity of teaching hospitals should be maintained, to the end that teaching may not be curtailed.

(i) The plan should be on an obligatory basis for the income groups specified and should be without exceptions.

In other words all persons coming within the income brackets stipulated should be required to contribute to the Fund and be eligible for benefits and there should be no provision for the exclusion of groups below the income level set for the operation of the Act.

Much of the value of a fully adequate scheme lies in its *preventive* services. The entire population benefits from the functioning of these services and should contribute to them. Conversely, if preventive measures are not applicable to any groups in a community, not only do these groups suffer, but they may constitute a health menace to others.

There are certain plans operating in parts of Canada with voluntary prepayment for health services, providing either medical care or hospital care, or both. Some of these plans are excellent—as far as they go. But none of these plans, to the best of our knowledge, offer the complete protection -- preventive, diagnostic and curative—which we believe is envisioned in this proposal. Some of these plans do not cover dependents. Others cover dependents but, in one-industry towns, may not cover the scattered townspeople not directly connected with the plant. Any acceptable national or provincial plan should offer more than can any individual plan. These plans deserve great credit for their pioneering service but it is in the national interest to have all single plans absorbed. With a government subsidy, the resultant cost to these industries should be less than under present conditions.

It has been the experience in other countries, notably Great Britain, that the exclusion of certain groups of individuals and the utilization of existing plans has complicated the situation and made it more difficult to attain ideal results. From the viewpoint of administration, a multiplicity of local arrangements, perhaps overlapping in the one community creates a situation so chaotic that efficient operation becomes very difficult. Another difficulty arises when an individual changes his employment or moves to another town. If Canada is to have Health Insurance, let its action be not hamstrung by lack of vision or courage.

There are within Canada, also, certain groups who do not accept medical services—at least at times. They all, however, have been the beneficiaries of preventive and public health services and most of them, sooner or later, of diagnostic and treatment procedures as well. Apart from this, however, all our citizens have a *common community obligation.* There is probably no argument which can be advanced in support of the exclusion of certain groups from participation in any plan which was not

advanced two or three generations ago in opposition to the inclusion of the general population in a scheme under which all were taxed to support our great public school system, even though all do not avail themselves equally of its privileges. It should be quite proper, of course, for certain individuals, if they so desire, to obtain their health care outside of the provisions of any insurance scheme, even as individuals now use schools which are apart from those provided under the authority of our Public or Separate School Acts.

It should also be proper for any institution or any member of any profession to decline to act under the plan and to offer services in a private capacity under any arrangements which are agreeable to themselves and to their patients, provided these arrangements are not contrary to public interest.

(j) If cash benefits be provided for loss of time through illness, such should be through a separate fund entirely apart from the Health Insurance fund.

Cash benefits, obviously, are a matter of great importance to the insured. It is entirely true "that a person sick needs financial assistance more than a person well". This is realized, yet from the viewpoint of conscientious medical service cash benefits incorporated in Health Insurance have introduced serious complications.

In every country where cash compensation for loss of time has been a part of a sickness insurance plan, there has been great dissatisfaction over the complications of operation which have developed, and the drain on the common fund because of its inclusion. Because of experience gained in other countries operating a Health Insurance plan, we strongly recommend that such assistance be provided through some plan to be devised *entirely apart* from the Health Insurance plan.

VIII. Can Health Insurance Meet the Medical Needs of Sparsely Settled Communities?

The answer is "yes". In areas where a doctor could not make an adequate living on the ordinary basis of remuneration under the plan, the Commission could provide a salary adequate enough to prove attractive to our doctors. If district nursing service be provided, as well as adequate diagnostic and reasonable hospitalization facilities, and if reasonable opportunities to get away for postgraduate study or for vacation be made available, our doctors will go to rural areas. If bursaries be made available to permit brilliant young people without adequate financial means to complete the medical course, their services in such areas for a definite period of years could be required. The same effect could be obtained, as has been done in Australia, by offering young men and women opportunities for postgraduate study upon the completion of a definite period of service in rural communities.

IX. Health and Health Preservation in Years to Come

During the past two generations more progress has been achieved in making good health care available to all than for the two previous centuries. We anticipate still greater progress in the years to come.

Improved facilities for diagnosis: Better and more readily available diagnostic procedures will do much to still further reduce illness. It is hoped that the present commendable system in many provinces of having certain swabs, smears, blood samples, etc., examined by the Department of Health will be extended. The setting up of branch laboratories has been of tremendous assistance. The establishment of "diagnostic centres" in strategic locations may be anticipated. These could be governed by adequate regulations relating to the nature and quality of service, charges and remuneration and to ethical relations. As the inclusion of people of inadequate means under a health insurance plan may make most hospital outdoor departments unnecessary, some of these facilities might be converted into "diagnostic clinics" or centres for referred patients.

Rural medicine: Rural medicine will be better organized in years to come. Good care must be available to all. This does not mean that a highly trained doctor must sit around waiting for a handful of scattered settlers to call for his services, but it does mean that methods will be worked out whereby "positive" health care can be made available to these people. This can be accomplished by adequate district nursing, by a reasonable system or rural hospitals and by providing doctors with sufficient returns to compensate them for the hardships and strain

of that type of practice. This will all be made easier by providing good roads and improved methods of transportation.

As for *specialist* and *consultant services*, there is no reason why such cannot be made available to rural areas. To a large degree the removal of the economic barrier and better transportation will permit readier consultation at the doctor's office. The bigger problem — that of bringing the specialist or consultant to the rural patient—could, and may be, overcome in a fashion similar to that evolved some years ago in Australia and now widely utilized in military medicine, that is by aerial transport. The day may not be far distant when health service planes could be made available in selected areas to carry specialists and consultants, or even "surgical teams", to seriously sick or injured patients. The same planes could function as "aerial ambulances" to carry patients to hospital. The helicopter type of plane would be particularly valuable for this purpose.

Health centres: In certain areas, we can foresee the creation of "Health Centres", such as have been envisioned by the British Medical Planning Commission in its constructive report in 1942. In essence the proposal is as follows:

The Health Centre would be a building providing a series of consulting rooms, waiting rooms, a small operating room for minor surgery, laboratories and other accommodation. The general practitioners in the town, or that part of a city, would use these facilities for their office consultations. They would not be in partnership, as in a clinic, but would merely use these facilities in a co-operative manner. Each doctor would have his own patients who in turn have exercised their right to select their own medical adviser. Specialists would see patients either in the centre or elsewhere. Serious or more difficult cases would be sent to the hospital. Work of the centre would be preventive and educational, as well as diagnostic and curative.

The x-ray department and the laboratories would be available to all participating doctors: so would the dispensary, the secretarial department and the clinical records department. Health visitors and district nurses would have their headquarters at the centre.

A large city might have a number of these centres. We might add that where a hospital is centrally located it would be quite possible to have such office building adjacent to or part of the hospital itself.

Hospitals: Our present hospital system is excellent, but it will probably show better integration in the years to come. We sincerely hope that we shall always continue to benefit from the services of the great group of voluntary hospitals, lay and religious, which have served our sick for many years. It should be possible, however, without jeopardizing this system, to have hospital construction and equipment in general follow a carefully planned program based upon Provincial and community needs rather than upon unrelated and sometimes overlapping local efforts.

Specially designed hospitals should be available in rural areas. These should not be made more elaborate than is justified by local needs, by professional and technical staff available and by the proximity or otherwise of similar or better facilities. Nor should they be more numerous than is necessary to meet local conditions. As transportation facilities improve the need for numerous rural hospitals should decrease rather than increase. Moreover, if rural and urban hospitals could be so linked that patients could be quickly transferred when necessary to institutions with more elaborate equipment, the net result should be a reduction of mortality, more rapid convalescence and a definite saving of both skilled personnel and special equipment.

One regrettable gap in our present facilities will surely be corrected, that is, more hospitals for convalescent patients and for those suffering from chronic or incurable illnesses. Actually such provision would be a distinct economy.

Should these improvements be combined with general increase in social security and health planning — assured employment and maintenance, better nutrition, better sanitation, better housing and planned physical programs—the improvement in national health would be amazing.

CONCLUSION

Throughout the last ten years, the Canadian Medical Association has consistently and repeatedly sought to ascertain the opinion of the medical profession on the subject of Health Insurance. The views expressed in this submission crystallize those opinions.

Since this memorandum was prepared, there has been placed in your hands the Draft pro-

posals of the Advisory Committee on Health Insurance. While some of us have had the opportunity of seeing these proposals, they have not been seen by our constituent societies. It is our hope that in the immediate future the medical profession throughout Canada will be permitted to examine these proposals in detail and that shortly thereafter we may be in a position to come back to you to discuss those aspects of the proposals upon which you might desire our advice and opinion.

In conclusion, the Canadian Medical Association desires to assure the Special Committee on Social Security that our entire organization stretching from sea to sea stands ready to render any assistance in its power towards the solution of one of the country's most important problems; namely, the safeguarding of the health of our people.

PERSONNEL SELECTION IN THE ARMY

By Colonel W. Line

Director of Personnel Selection

and

Lt.-Col. J. D. M. Griffin

Consultant Psychiatrist, R.C.A.M.C.

ONE of the main differences between this war and the last is the greater importance now attached to the problem of selection and placement of personnel in the armed forces. Especially is this true of the Army. In the past it made but little difference whether a man was intelligent, literate or skilled in some trade, so long as he could learn to march and fire a rifle. The present emphasis is on mobility and mechanization, on specialist corps and units of all types, and on the training of men in the use of highly complicated fighting machinery, both as individuals and in small groups or teams.

These trends in modern warfare have developed specialized methods in the screening, selection, and allocation of men in the armies of most of the great powers. It is the purpose of this article to describe briefly some of the selective techniques at present being used by the Canadian Army.

PURPOSE OF PERSONNEL SELECTION

The primary object of personnel selection is to appraise the soldier's general ability and personal fitness and to place him effectively. Other functions, some of which are described below, are important, but remain subsidiary.

A modern army employs skills most highly complex and technical. It demands the coordination of the efforts and abilities of all soldiers. This can be accomplished only if men function at their maximum capacity. Efficiency of every degree of technical complexity drops when men are placed in posts which are either too difficult or too easy for them. In the one case, they are bored and easily distracted. Delinquency rates mount, sick parades become crowded, and in many ways the mental health of the group goes down. Morale suffers too, if ability or special qualifications go unrecognized and unused. The individual soldier must feel he is doing a job for which he is competent and in which he can gain promotion by doing his best.

GROWTH OF PERSONNEL METHODS

Since the last war the increased specialization in industry has led to the intensive study of selection techniques, whereby the natural aptitudes and abilities of individuals can be estimated. Vocational guidance programs have been started in many progressive high schools. These programs have utilized with increasing success psychological tests of various types. The so-called "Intelligence" test is one example. In addition, there are tests of mechanical aptitude, clerical aptitude, and educational achievement as well as tests of temperament and personality.

The American Army in the last war developed group tests of intelligence which proved of definite value in selecting N.C.O.'s and officers, as well as in screening out the mental defectives. The German Army, quick to capitalize on this experience, developed an elaborate system of psychological selection as early as 1926. Today psychological testing is generally accepted as a necessary part of military personnel work.

Important progress has also been made in the art of interviewing and counselling. Many of Canada's major industries have developed personnel services in which both testing and interviewing are used to help select and allocate employees. In many instances the personnel managers and their assistants have become skilled clinicians in appraising personality. It is this "clinical" approach which the Canadian Army is using in its selection and allocation of soldiers.

The "M" test.—Various tests are used in the Canadian Army, but the standard test which is now administered to all recruits is the so-called "Revised Examination M", or "M" test. Designed and standardized by the Canadian Psychological Association, it has been of tremendous value in the preliminary screening of men to determine their learning capacity and aptitude. It is a group test that can be given to groups of fifty or more men at one time.

The "M" test is a printed paper booklet of eight short sub-tests. It is carefully designed so that a minimum of writing is required. The recruit uses a pencil to mark, make simple calculations, or underline words. Before beginning the test the group is given a short talk by an officer (Army examiner) of the Personnel Selection staff. Since very often the "M" test is the first formal procedure the recruit meets in the army, this informal talk is exceedingly important. The rôle of Personnel Selection in the allocation and follow-up of men is briefly explained. The test is described as a procedure designed to help the army to do intelligent placement. Every effort is made to allay tension and apprehension.

The eight sub-tests are all quite different and each samples a different type of experience and ability. Definite time limits, ranging from 2½ to 5 minutes, are assigned to each, and the whole takes about an hour. Each sub-test is preceded by a practice exercise which acquaints the recruit with the nature of the test and, in general, with the kind of response he is expected to make.

Sub-tests 1, 2 and 3 are non-language "picture" tests. There are no words to read or numbers to interpret. They comprise pictures of common objects, every-day situations or simple geometric forms. The recruit is asked to determine what is missing or wrong in the pictures and how the geometric forms may be divided in order to obtain smaller forms. The material can be readily understood by the completely illiterate, providing they are of average intelligence. With the aid of the practice exercises and, occasionally, some individual instruction, it is even understood by recruits who speak little English or French. The total score on these three alone is an excellent indication of the man's learning capacity, and can be used as a guide to help select those men from among the completely illiterate who are educable.

Sub-tests 4 and 5 are designed to measure the man's knowledge of tools and simple mechanical processes. In a limited way they may reflect mechanical aptitude, since men who are interested and experienced in mechanical things often, though not always, develop an aptitude in this direction.

Sub-tests 6, 7 and 8 measure the individual's ability in simple arithmetic, vocabulary and word (or idea) relationships, respectively. A considerable degree of literacy is required to do well in these tests.

The recruit's score in the test, as a whole, is expressed by a number (0 to 211) indicating the number of items completed correctly. The score gives an excellent indication of the man's potentiality as a soldier. The average score obtained in the Canadian Army is about 130.

Since more than 200,000 men have been tested so far in Canada alone, it has been possible to make a very complete statistical analysis of the scores and determine the relation between test score and success in army training and placement. It has been definitely established, for instance, that with a few well recognized exceptions there is little chance of a recruit completing his military training successfully if his "M" score is much below 75 or 80. Similarly, it has been found that soldiers selected for trades training should have "M" scores above a critical threshold, carefully established by analysis of the successes and failures at the army trades schools. The "M" test has also proved to be very valuable in helping to select candidates for officer training. A French version of the test is given to French-speaking recruits, and has been similarly standardized.

To those who have become accustomed to think of intelligence in terms of mental age or I.Q., the point score system as used with the "M" test is apt to be confusing. Although it has been demonstrated that there is a very high correlation between mental age and "M" score, no attempt is made to translate the scores into I.Qs. As a matter of fact, the mental-age concept, except in describing mental deficiency, is not of very great value in work with adults. Instead, the scores are interpreted in terms of their place in the total distribution of scores. Thus, for example, a man's score might be classed with the highest 20% of the army, or the lowest 10%. This places the man's performance in relation to that of the army generally. A greater refinement usually is not necessary.

The interview. — Just as important as the "M" test is the personal interview by an Army examiner which follows the test. Most recruits find this interview a very pleasant experience, the highlight of the whole procedure. Every effort is made by the interviewing officer to establish good rapport, gain the man's confidence, and make it easy for him to talk about himself. In this way, the vital background information, so essential to effective placement, is gained. And, through it, an effort is made to assess the man's temperament and character.

The interview serves several functions. It checks and interprets the test score. It determines, on the basis of education, past experience and the findings of the medical board, the most effective placement for the man in the army. It indicates men who seem to be potential officers, N.C.O.'s or specialists. And, finally, it earmarks for recheck by the psychiatrist and Medical Board men who by reason of poor mental capacity or instability seem unsuitable for placement anywhere in the army.

The interview is definitely not a parade. The atmosphere is quite informal. The recruit is invited to sit down, and smoke if he wishes to. The attitude of the interview officer is one of friendly interest. A few questions relating to the man's birthplace, age, etc., serve to get the man talking about himself and to direct and stimulate the conversation. Routine or stereotyped questions are avoided as much as possible. The aim is to secure certain basic factual information about the man to prepare a pen-picture of him as an individual. The extent and nature of his previous military training (if any), his educational background (academic and vocational) and his occupational background are all investigated. In addition, information is obtained about his hobbies and interests, his social activities, and his family.

During the interview the examiner keeps an observant eye on the recruit. He watches for signs of emotional and nervous instability. He notices whether the man is comfortable or ill at ease, shy and reserved, or over-confident. He tries to find out how the recruit really thinks and feels about things; his attitude to home, family, the army, etc. Sometimes this leads to the discovery of psychopathic trends which necessitate referral to the psychiatrist. In general, the examiner attempts to appraise not only the general appearance and bearing of the man but his personality as well.

Finally, the question of allocation is fully discussed with the recruit. In his talk to the group, either immediately preceding the "M" test or the interview, one of the Army examiners has previously described the chief corps and arms of the service in terms of the kind of work done, weapons used, possibilities for various specialties, etc. Often this talk is illustrated by pictures or posters. Now, in the interview a decision must be made, definitely assigning the recruit to one of these corps and, if possible, to a particular specialty in that corps.

Job analyses and specifications have been made of all the principal types of army occupations. It is laid down, for instance, that an infantry rifleman should have an "M" score above a certain figure; be in medical category "A"; and have good nervous stability. If, in addition, he is interested in hunting and outdoor life generally, and likes the notion of commando training, the chances are excellent that he will make a good infantryman. The specialist jobs in corps such as the Signals or Ordnance, have very detailed specifications which include not only such things as "M" score but the size and weight of the man, his temperament, education, and vocational experience.

Every effort is made to make the recruit feel satisfied about his allocation. If it is obvious that he desires a post for which he is quite unsuited, the situation is explained in detail. He is made to see the futility of trying to force himself to achieve something which is quite beyond him. This is regarded as one of the most important aspects of allocation.

In order to control the number of allocations made to various arms and corps, quotas are provided every fortnight from the Adjutant General's Branch. These quotas must be continually taken into account in allocating recruits. If on one day too many men have been allocated to the artillery, this particular arm is neglected a little the following day. And so a balance is maintained between all the branches. An attempt is made to give them all a fair share of the best men as well as some of the poorer, always considering the requirements and difficulties of their training schedules.

All the information obtained from the "M" test and the interview, including the allocation, is duly recorded on a special Personnel Selection Report card, which is placed with the man's documents and accompanies him wherever he goes. This report card is cumulative,

for from time to time further entries may be made.

ORGANIZATION

To carry out an efficient program of personnel selection it was necessary to train and appoint a number of officers and sub-staff. Senior officers in Personnel Selection, for the most part, are qualified psychologists with extensive clinical experience. There were not enough psychologists in Canada, however, to provide the number of officers required. Consequently, men were recruited from the personnel divisions of industry and the larger business firms. Others were high school teachers with experience in vocational guidance. All have been given intensive training in military methods and have a working knowledge of the requirements for all of the arms and corps.

In addition to the staff required for the initial testing, interviewing and allocation work at Recruiting and Reception Centres, Army examiners have been posted to all Basic and Advanced Training Centres, Army Trade Schools, and all District Depots. It is intended to provide staff for the operational units in the field as soon as suitable officers can be trained.

From the above, it is seen that Personnel Selection plays a rôle throughout the man's training. It is not merely a procedure which happens to a man once at enlistment and then is forgotten. Although the original allocation is made at the Reception Centre, it is reviewed during basic, advanced and specialist training. Where necessary, when it has been shown that a mistake has been made and a man obviously is unsuitable for his particular allocation, he may be reallocated to another type of work or to a different arm or corps. Similarly, it is very natural that there should be a very close liaison between the Personnel Selection staff and the medical officers, particularly the psychiatrists. It is a common practice for medical officers and Army examiners to discuss cases in which they have a mutual interest. Often the medical officer will feel that a man's health would be materially improved if his work were changed. He discusses this with the Army examiner. Sometimes the Army examiner wonders if the man he has interviewed is really in the correct medical category and this is discussed with the medical officer.

THE RECEPTION CENTRE

Nowhere is there a better example of the close collaboration between the R.C.A.M.C. and Personnel Selection than at the Recruiting or Reception Centres. Although these centres have not yet been organized in every military district it is intended to have them as quickly as facilities can be arranged. At the Reception Centre the recruit presents himself, either for voluntary enlistment or for enrolment under the N.R.M.A. In some of the larger centres as many as two or three hundred recruits are enlisted in one day. On arrival they are welcomed by the recruiting staff. After some preliminary documentation they are given the "M" test and a short "Health" questionnaire.

The Army examiner has a short interview with all men who obtain low "M" scores. This enables him to decide whether or not the man's poor performance was due to language handicap, insufficient education or lack of intelligence. If he suspects that it is due to lack of intelligence, the recruit is referred to the psychiatrist for examination.

The "Health" questionnaire, which takes only five or ten minutes to administer to an assembled group, consists of about thirty questions, phrased in simple language and designed to indicate those men who are emotionally or temperamentally unstable. Such questions as the following indicate the general trend: Have you fainted more than twice in your life? Do you worry about people talking about you behind your back? Do you have to go to a doctor often? Do you think you are very nervous?

Various forms of the questionnaire are being tried in different districts, but, in general, the questions cover much the same sort of material. It has been found quite practical to obtain fairly reliable information in this way about the recruit's attitude toward his own health, the incidence of nervousness in his family, various indications of poor emotional and social adjustment such as alcoholism, criminal record, occupational instability, etc. On the basis of the answers to these questions, a proportion of the recruits are earmarked for careful psychiatric examination.

Having completed the "M" test and the questionnaire, the recruit proceeds to the medical examination which includes the usual x-ray and laboratory procedures. A psychiatrist is working constantly in close collaboration with the Medical Board. He does not attempt to examine

every man. But he does make sure of seeing all those who are referred (*a*) by the Army examiner because of low "M" score and probable mental retardation; (*b*) by the answers given on the questionnaire, and (*c*) by the other members of the medical board when they feel the recruit shows evidence of some mental or nervous disorder. This represents usually about 25 to 40% of the total number of recruits medically examined. Of the group referred to the psychiatrist perhaps a third to a half will be rejected because of psychiatric disability.

After the recruit completes his medical examination and is tentatively accepted as physically and mentally fit he proceeds to the Personnel Selection interview. The interview has been described in detail above. At the end of the interview recommendations concerning his allocation are made and he formally enters the army.

The interview, itself, acts as a final psychiatric screen, in the sense that any recruit who has not been seen previously by the psychiatrist, and who in the opinion of the Army examiner exhibits symptoms of instability or other psychiatric disorder, is sent back immediately for psychiatric examination. Very few have to be referred back in this manner. Nevertheless, the psychiatrist works closely with the Army examiner, to make sure that likely cases are spotted. Occasional clinics are held by the psychiatrist in order to assist the Army examiners in their search for signs of instability.

Malingering is a matter that is constantly under discussion. From the layman's point of view, it would seem easy for the recruit to pretend to be stupid and thus sabotage the "M" test in order to obtain a rejection. Similarly, it would seem to be a simple thing to learn how to give a history of the vague complaints (including nervousness) which are so characteristic of psychoneurosis. The fact is, however, malingering is very uncommon and can easily be spotted.

Men who deliberately try to do badly on the "M" test almost always overplay their hand. They make the characteristic mistake of giving silly answers even on items which can be done correctly by the feebleminded. Or the educational and occupational history is not consistent with their poor effort on "M". A little questioning quickly brings out the discrepancies. (It may be said in parenthesis, however, that in many cases it would be of great value to have the social, educational and occupational background checked by a qualified social worker. For occasionally men are accepted for service when a complete check-up on their history and background would have revealed that they are in fact unsuitable because of psychiatric disability. It is hoped that in the near future a qualified social worker will be posted to each reception centre in order to help with this aspect of selection.)

The importance of keeping out of the army men who are potential psychiatric casualties cannot be too greatly emphasized. Since the beginning of the war more than 13,000 men have been discharged from the army for nervous and mental disorders. It is felt that a great proportion of these men should never have been enlisted, and under the present plane of psychiatric screening would certainly have been rejected.

OTHER ASPECTS OF PERSONNEL SELECTION

Personnel Selection has many Army responsibilities in addition to psychiatric screening and the allocation of recruits. More and more emphasis has been placed on the careful selection of trade trainees and candidates for officer-training centres. Most of these special selections are finally made at a time when the soldier has nearly completed his "basic" and "advanced" training. Nevertheless, a notation is often put on the report card of the recruit at the Reception Centre, indicating that he has the potential capacity of an officer or specialist. This gives the training officers a hint as to the most promising recruits in their centres. These men are observed closely and if by the end of "advanced" training they seem to show the other qualities necessary in a successful specialist, (*e.g.*, an officer must possess leadership qualities as well as intelligence) they are selected for special training.

More and more frequently, commanding officers are consulting the Army examiners in connection with disciplinary problems. It has been discovered, for instance, that many men are chronically delinquent because they are disgruntled and unhappy in their army placement. In many cases other emotional factors come to light, such as worry over family, home and finances. The Army examiner, the psychiatrist, the chaplain and auxiliary service officers may all play a part in the handling of such cases. And there would appear to be an excellent op-

portunity here, also, for a trained social worker.

The training officers regularly consult the Army examiners about the everyday problems of their work. One man is failing in map-reading; another breaks down on the drill square; a third co-ordinates badly and seems unusually clumsy. Such cases are investigated, and special measures suggested to deal with them. Frequently it is a question of reallocating to another branch of the army.

Largely because of problems thrown into relief by personnel and psychiatric methods, the army has developed new techniques in connection with training. For example, because it was discovered that many hundreds of men were coming into the army, who had had little or no schooling and were partially or wholly illiterate, the special Education Basic Training Centres at North Bay and Joliette were established. One of these centres is for English-speaking recruits and the other for French. These training centres teach men to read, write, and do arithmetic in addition to the regular basic military training. Four months, instead of the usual two, are allowed for this purpose. This plan has salvaged a great many men and made them into useful soldiers.

Another development has been the recognition of the fact that all men do not learn at the same rate. In certain training centres, therefore, the men are grouped according to their speed of learning. Certain groups will cover the course and qualify a month or so before the usual time. Other groups, on the other hand, take longer. Re-grouping has had a most stimulating effect on morale as well as training.

CONCLUSION

An attempt has been made to sketch very briefly the rôle of Personnel Selection in the Canadian Army. More and more emphasis is now being placed on what might be called the human side of army organization. Psychology, psychiatry, and education are collaborating to improve fighting efficiency and morale. The development of Personnel Selection in such close relationship to the R.C.A.M.C. reflects credit on the far-sighted judgment of those in National Defence Headquarters who were responsible for its inception. The benefits in terms of increased efficiency in training, lessening in the wastage of manpower, and the heightening of morale generally, have already been clearly demonstrated.

RÉSUMÉ

L'expérience a démontré que le personnel de l'armée doit être soigneusement sélectionné aux points de vue habileté et efficacité. Les tests d'intelligence et d'aptitude placent maintenant les bons sujets aux postes pour lesquels ils sont compétents, de même qu'ils éliminent les moins bien pourvus. Les tests sont suivis par une "interview" du candidat par l'examinateur afin d'établir les données exactes sur son tempérament et son caractère; afin aussi de déterminer le rôle le plus utile qu'il pourra être appelé à jouer. Ces examens sont conduits par des psychologues expérimentes, par des orienteurs entraînés et parfois avec la collaboration des psychiâtres.

Au centre de réception, l'examen préliminaire permet déjà un premier triage qui facilitera la tâche des examinateurs spécialisés subsequents. Du reste, un psychiâtre collabore constamment avec le médecin examinateur au cours des premiers examens cliniques. La simulation est facilement démasqués, dut-on recourir aux services d'aides sociales pour relever leur passé. Grâce à cette sélection, il arrive souvent que les qualités exceptionnelles des sujets examinés guident les chefs dans les promotions comme dans les changements de postes. Cette selection augmente, en définitive, le rendement et le moral de l'armée. JEAN SAUCIER

PSYCHIATRIC PROBLEMS IN THE ARMY

By Major D. G. McKerracher

District Psychiatrist, R.C.A.M.C.

MENTAL disorder is one of the army's major medical problems. Since this war began thousands of soldiers have been discharged from the Canadian Army with psychiatric disabilities. At least 30% of all men being returned now from overseas as unsuitable are psychiatric casualties. From these amazing figures, many people have erroneously deduced that military service produces psychiatric disabilities among individuals who were perfectly healthy in civilian life. But this conclusion is wrong. Our experience has shown that these newly revealed psychiatric disorders invariably existed, at least potentially, before the individual was inducted into the army. Furthermore, it has shown us that with adequate psychiatric examination the great majority of these disabilities could have been diagnosed at the time the individual entered the service.

Why then do these apparently latent mental disorders come to light during military service? Why is the psychiatric admission rate in military hospitals four times as high proportionately as in civilian hospitals? Why do physicians, who in general medical practice considered psychiatry to be confined to the hospital care of the violently deranged, quickly come to realize that it is an integral part of their every day army work?

The answers to these questions, in my opinion, involve several factors. In the first place, civilian psychiatry is given a "black eye" by the stigma that is attached to mental illness. For this reason civilian psychiatric disabilities are camouflaged as exhaustion, overwork, nerve strain, or, at worst, nervous breakdown. But the army has no time for such niceties. In military life a spade is called a spade and a nervous patient is usually, unfortunately, but graphically called a "nut". In the second place, the busy regimental medical officer does not have to pamper the complaining individual whose symptoms have obviously no organic basis. Finally, and this is probably the most important factor, the complexity of military life with its regimentation and its difficult human relationships, requires a high degree of adaptability. The individual with a minor or latent psychiatric disability, who is able to carry on in civilian life with its slower tempo and greater privacy, finds himself unable to make the necessary adjustment, and becomes a psychiatric casualty in the army.

When do these psychiatric disabilities, which passed unnoticed so readily in civilian life, come to notice in the army? They become evident at any time, but usually soon after the soldier is inducted. They are found to be a factor in a great many of the problems that administrative, training, and medical officers have to solve, and which include persistent absence without leave, poor training progress, and too frequent attendance at sick parade.

Many officers, some of them medical men, and particularly those who are veterans of the last war, will protest that these are purely disciplinary problems and in no sense medical. They will state, furthermore, that these are a reflection of poor morale peculiar to this war alone and that treating them as medical problems is establishing a dangerous precedent.

In response to this inevitable objection, let it here be said that it is *not* claimed that all cases involving these three problems are caused by psychiatric disability, but it is emphatically stated that most of them are. The proof of this was found in the last war. At that time, in a type of warfare much less complex than at the present time, an attempt was made to deal with these three problems (persistent A.W.L., poor training progress and too frequent attendance at sick parade) by disciplinary rather than medical measures; that this was a failure is suggested by the fact that one-seventh of all men discharged from the army from 1914 to 1918 were discharged for psychiatric reasons. When one allows for the lack of war wounds, the ratio of psychiatric discharges in this war is practically the same. Thus, in spite of an effort to handle these behaviour problems solely on a disciplinary basis, it became evident that a certain segment of the population just cannot be made into good soldiers.

Finally, we shall attempt to show that these problem soldiers present clinical entities identical with those found in civilian psychiatric practice.

Classification of Types

Now, what are these clinical entities? They can readily be grouped under five main psychiatric classifications. The first and least important are the psychoses. These conditions with gross deviations of thought and mood are easily diagnosed and the disposition is rapid. Contrary to common belief, actual warfare increases but little the incidence of this type of mental disorder. Schizophrenia and manic depressive psychoses appear on the battlefield in almost the same ratio as in a comparable civilian group.

The second type of psychiatric disability, namely, idiopathic epilepsy, is troublesome, but not prevalent. Epileptics, because of their traditional egotism, self-dramatization and obsessional desire to "get away from" their affliction, are "chronic enlisters". I personally know several epileptics who have enlisted more than five times.

Of greater importance and provocative of much more controversy is the individual whose antisocial acts are continued with even more disastrous results in the army. He is the persistent A.W.L. and disciplinary problem. He is not to be confused with the casual absentee who responds to discipline. He is the psychopathic personality type, our third group, who has been in conflict with society since childhood. In civilian life he was a truant, a thief, a forger, a chronic alcoholic. Someone has said that the army is not a reform school and the truth of this has been adequately proved. The man who is totally maladjusted in civilian life will never adjust in the army.

Of major importance is the fourth group. These are the individuals with a congenital

lack of intelligence. Because of this defect they are unable to master even the simplest techniques demanded by modern warfare. These are the mental defectives commonly known as morons or feebleminded. They show up badly on the parade ground and are a total loss in the lecture room. Some of them can be absorbed by routine tasks and fatigue duties, but all the routine tasks in the Canadian Army can only absorb a small fraction of the mental defectives of military age.

The policy of rejecting the mental defective brings foreboding to the minds of many well meaning individuals. They say that our manpower problem is acute and that these people, taken into the army, could be used to build roads and load boats; that even a mental defective can handle a rifle. But in this war roads are built and boats loaded by machinery. Furthermore, if the present war is a total war, as we are so often told, everybody must be used in some capacity either in the military organization or in a civilian occupation. The military team, since it is on the front line, must be a well co-ordinated, fast-moving, quick-thinking group. The civilian team, on the second line, a more numerous and ponderous group, is less handicapped by minor deficiencies of its members. So a man lacking ability for the first team can readily be absorbed by the second. It is essential that the military organization be comprised of the best if we are to win the war. This may not be sociologically sound, as the greatest casualties will be among the best types, but the defeat of our military team would be even more disastrous.

Finally, we come to the most important, the most difficult and definitely the most significant group of psychiatric disabilities found in either peace or war. I refer to that condition of emotional instability which we speak of as neurosis. It is commonly called psychoneurosis and is often confused with malingering. This group includes the anxiety, the hysterical, the reactive depressive and the obsessional states. These psychological disorders are part and parcel of the whole field of medicine, both military and civilian. The etiology is found in the emotional immaturity of the individual which is manifested in his inability to cope with his environment.

The clinical picture is fairly consistent; the individual complains of headaches, dizziness, palpitation, generalized aches and pains, dyspepsia and nervousness. Yet exhaustive medical and surgical investigation reveals no organic disability.

It should be noted here that most of these signs and symptoms are those observed following excessive responses of the autonomic nervous system. All persons will show excessive sympathetic response if sufficiently stimulated. But, in only a fraction of the population, however, is this response carried to the point where it becomes incapacitating. This fraction comprises the group known as neurotics.

The diagnosis of neurosis is not, as is so commonly felt, the practice of simply eliminating the possibility of the presence of organic disease. The neurotic belongs to a definite entity. There is a lifelong history of emotional immaturity which appears to be in a large measure due to the home environment. For this reason it is necessary to obtain a detailed history of parental instabilities, of childhood neurotic states, of occupational neuroses. The neurotic is an adult with the emotional reactions of a child. So active is his protective mechanism that some wag has translated D.A.H. to mean, not "disordered action of the heart", but rather a "desperate affection for home". So, before a diagnosis of neurosis is made this definite clinical picture must be obtained.

How the Problem is Dealt With

But now that we are familiar with the cardinal picture of these five psychiatric entities, just how do we go about dealing with them in the army? What system has the army for the diagnosis and disposition of its psychiatric problems? The present psychiatric system in this military district has developed chiefly during the past five months. Here, I might say, that it is primarily due to the perspicacity of the District Medical Officer, Military District No. 2. This service encompasses all the personnel in the district from the time the recruit presents himself for induction, until he is ready to proceed to another district or overseas. The object of this psychiatric service is the identification and assessment of all psychiatric abnormalities occurring among these men. Thus an attempt is made to determine the recruit's fitness for service and the theatre of service for which he is fitted.

It must be stated here that our policy at the present time is one of diagnosis and prognosis, not of therapy. Herein we diverge from the obvious policy of the psychiatrist in practice. We feel that the army is not, generally speaking, the place for intensive psychotherapy. Now it is true that morale building is a very essential type of psychotherapy and that good morale in a unit will reduce the number of psychiatric casualties on the battlefield. It is also true that these psychiatric battle casualties will respond to psychotherapy. But in this paper we are not discussing casualties on the field of operations, we are discussing disabilities which become evident early in training far from the scene of battle. It is doubtful if those who break down before leaving Canada would be greatly influenced by either good morale or psychotherapy.

Since early identification of mental disorder is paramount, the logical place for the psychiatric investigation to start is the recruiting centre or the depot where all recruits receive their preliminary medical examination. In Military District No. 2 psychiatric consultants are posted at the two centres through which nearly all recruits pass for medical examination. It is the responsibility of these psychiatrists to see that no recruit with psychiatric aberration passes undetected through the respective centre. Since, in our opinion, a psychiatrist should never examine more than forty men a day and probably does his best work when the number is less than thirty, it is apparent that he cannot see every man passing through the recruiting centre. Nor do we consider this necessary or even advisable. It would seem better to spend ten minutes with each man in whom psychiatric disability is suspected, than three minutes with every man passing through the centre. For this reason, an initial screening process is necessary. The purpose of this screen is to direct to the attention of the psychiatrist the fraction (probably 20% of the total) of the recruits containing most of the psychiatric disabilities.

This selection for psychiatric examination is made in various ways. In the course of his journey through the recruiting centre every recruit is given by the staff of the Personnel Selection Directorate, an aptitude and intelligence test known as the "M" Test. This test is intended to serve as a guide to the Personnel Selection Officer in the allocation of the recruit to the arm for which he is best suited. However, it has been found to be almost impossible for a mental defective to make a score on this test of over 90 out of a possible 211. Consequently, all recruits with a score of less than 90 are referred to the psychiatrist. Let it here be emphasized that this does *not* mean that recruits with an "M" score less than 90 are necessarily mentally defective and must be rejected. A diagnosis of mental deficiency is made not on the "M" Test, but on a psychiatric examination alone. The "M" Test is simply a convenient screen to collect a relatively small group of referrals which will contain all the mental defectives. When a recruiting centre psychiatrist diagnoses mental deficiency he recommends that recruit for rejection.

A second portion of this group referred to the psychiatrist is comprised of all recruits who have been patients in mental hospitals or examined by mental health clinics. The identification of these has been made possible through the assistance of the Deputy Minister of Health and Hospitals. Every day the nominal rolls from both induction centres are cross-indexed with the records of the Provincial Department of Health, and those who have been in mental hospitals or seen by mental health clinics are referred to the psychiatrist. Thus, many psychotics and epileptics are picked up before attestation.

A third portion of this group referred for psychiatric examination is selected by a questionnaire devised to identify psychopaths, psychotics, epileptics and neurotics. This questionnaire comprises a series of some thirty questions concerning significant points about past history and present subjective symptoms. Whenever the responses are indicative of possible psychopathy the recruit is referred to the psychiatrist. The staff of the Personnel Selection Directorate has kindly co-operated in the administration of this questionnaire to date. The questions were designed in a manner judged to minimize any effort of the recruit to malinger or hide defects when giving his responses. This questionnaire has been in use in this district for some four months now and is proving its worth. It was originally formulated by the psychiatrists in this district, but we are greatly indebted to Colonel Duncan Graham, whose suggestions have made a valuable contribution to the present revised form.

A final and extremely important source of psychiatric referrals is the medical examination board. When a recruit appears disproportionately nervous and unstable during physical examination, he is referred by the board to the psychiatrist. He is also referred if he presents a multitude of somatic complaints without appropriate physical findings after a thorough check by an internist. In this group of psychiatric referrals will be found the neurotic destined to break down under the stress of combat service. The great problem, however, confronting the psychiatrist is to determine which portion of these individuals complaining of headaches, dizziness, chest pains, dyspepsia, or of tachycardia and dyspnœa, are true neurotics and should be rejected, and in which portion these symptoms are simply reaction to examination or motivated desire to escape military service. For our experience has taught us that at least 15% of all recruits at the time of examination have somatic complaints, or show evidence of excessive sympathetic response. We do know that this 15% contains the potential "shell-shock" cases, but we also know that it contains a larger number of excitable individuals who will make excellent soldiers. And finally it contains that group which feels that a lot of somatic complaints will purchase a rejection slip.

Because of the complexity of this problem, the District Medical Officer has felt, and the psychiatrists of this district are in full accord, that it is frequently impossible to predict a man's future emotional adjustment in one interview. In many cases the only true criterion will be the attempt at adjustment to army life.

Accordingly, our policy at the induction centres with respect to suspected neurosis is as follows: If the man is definitely and grossly neurotic he is rejected. He is also recommended for rejection if there is an authentic past history of neurotic disorder. But, if there seems to be a reasonable chance that his tachycardia, dyspnœa, etc., are a reaction to the stress of being examined, or that his gastric complaints are an effort to avoid service, he is recommended for acceptance. But with this recommendation for acceptance a stipulation is made that he be re-examined by a psychiatrist after four weeks of basic training. By that time he will have had an opportunity to adjust himself to military service. The psychiatrist will also have the advantage of detailed observation on the man made by his company commander and regimental medical officer. Since this system was inaugurated four months ago 688 men have been so accepted for observation out of a total of 2,770 examined by psychiatrists at the induction centres. This is to be compared with a total of 974 who were recommended for rejection because of all types of psychiatric disabilities.

The training centres and units of the district have been roughly divided into two areas, to each of which is posted a consultant psychiatrist. Each psychiatrist is responsible for the psychiatric consultant work in all the units of his sector. He always sees the men at their own units, rather than at some central point, as was the original practice.

Each unit is visited by the travelling psychiatrist at least twice monthly. All the cases he sees are referred to him through the regimental medical officer. These cases include the original referrals from the recruiting centres who have completed the four weeks' trial basic training period. It also includes any hitherto unidentified suspect mental disorders, the persistent A.W.L.'s, the training problems and the emotionally unstable.

With each man referred to the psychiatrist is a completed psychiatric referral form. This form includes a report from the man's company commander detailing his training progress, any observed aberrations and an opinion of the man's usefulness and prospects. On the same form is a report from the Army examiner about the man's "M" score and aptitude. Finally, the referring R.M.O. makes a note of significant medical history. With all this information available, and with a psychiatric examination, the psychiatrist is able to make a considered judgment of the man's mental state and usefulness for service.

If no gross psychiatric disability is found, no recommendation is made. If the man is found to be a stable, useful mental defective, or a neurotic who is doing a good job on a Home War Establishment, a report is made to the medical board with the suggestion that the man is fit for service in Canada alone. But, if a diagnosis of incapacitating mental disorder is made a recommendation for discharge is forwarded to the medical board.

In addition to visiting the various units, the travelling psychiatrists serve as psychiatric

consultants to the military hospitals in the respective areas. Consequently, prompt psychiatric consultation service is available in all units or hospitals in the district. Since inception of the service, 1,224 men have been examined in their own units by psychiatrists. Of these, 513 have been recommended for discharge on psychiatric grounds.

CONCLUSIONS

In this short discussion of psychiatric problems in the army we have attempted to give a general picture of the psychiatric organization in this military district. It is to be noted that the emphasis is on diagnosis and the discharge of those of the military personnel who have mental disabilities which are likely to interfere with efficient function of a military organization.

It must also be pointed out that, while the method of dealing with psychiatric cases in the army is different from that in civilian medical practice, yet the mental disorders found are essentially the same. The army psychiatrist is greatly indebted to all members of the medical profession, civilian and military, for the help they have given to psychiatry. In turn, it is our sincere hope that the clinical information gained by the Army's efforts to deal with its psychiatric problems will make some contribution to the general fund of medical knowledge.

RÉSUMÉ

Trente pour cent des soldats qui nous reviennent de l'armée comme inaptes au service sont classés sous les rubriques de diverses psychopathies. L'armée n'a pas créé l'état mental mais a permis à une tendance préexistante de se manifester, car, à l'armée les camouflages de la vie civile sont supprimés et les défauts d'adaptation sont vite remarqués. Les entités cliniques observées se divisent en 5 groupes: (1) les psychoses; (2) l'épilepsie; (3) les déviations psychopathiques de la personnalité; (4) la débilité mentale, et (5) les psychonévroses.

A l'armée il ne s'agit pas tant de traiter ces malades que de faite le diagnostic de leur psychopathie et d'établir un pronostic avant le départ pour le front. Le dépistage est, par conséquent, le moment le plus important de l'observation psychiâtrique pendant l'entraînement. Les suspects sont adressés au psychiâtre qui confirme ou infirme la suspicion. Les tests mentaux sont pratiqués s'il y a lieu. Les soldats qui ont déjà fait un accès psychopathique sont revus avec soin. Pour les névrosés, on essaie autant que possible de les adapter à la vie militaire. Le psychiâtre consultant recommande le renvoie, suggère un genre d'emploi différent, enfin classe définitivement le sujet comme apte ou inapte à la vie militaire.

JEAN SAUCIER

THE CANADIAN ARMY MEDICAL CORPS TRAINING CENTRE

By Captain P. N. MacDermot, R.C.A.M.C.

THE C.A.M.C. Training Centre is three years old this month (February, 1943). I propose to say something about its evolution—how it started, why it exists, what it has done, and what it is doing.

During the 1914-1918 war, now rather ironically referred to as the "Great War", the C.A.M.C. built for itself a reputation for courage and devotion to duty, and, more particularly in the latter part of the war, for efficiency in operation, of which there is good reason to be proud.

The methods of securing and training officers and men for the Medical Corps in that war were, however, to some extent of the hit-or-miss variety. All or most of the members of a unit were recruited from the same locality, and were trained by the officers of that unit. This meant at best irregular, unstandardized training. It meant that some were well trained and others were not trained at all. The natural effect of such a state of affairs was that most men got their training by the famous "hard method", which, being interpreted, means at the expense of the army.

The truth of this statement came to be recognized by many officers who served in the last war. One of these was Brigadier Gorssline, who, shortly after the beginning of this war became D.G.M.S. He saw clearly the need for and the value of a Training Centre for officers and men. It is due, therefore primarily to his efforts that the present Centre was started in February, 1940.

The Centre began in a somewhat humble way at Lansdowne Park in Ottawa, where it grew in stature for nearly two years. Lansdowne Park enjoyed a certain degree of popularity by virtue of its situation, but from the point of view of accommodation it was a mistake. The Centre was therefore moved in January, 1942, to Camp Borden, Ont., where it leads a better existence, but still under conditions of overcrowding and other disadvantages.

Now there are two classes, or, if the word offends, types, of men to train for the Medical Corps: on the one hand, officers, who administer, chiefly; and on the other, men, or "other ranks" as they are called. This perfectly

obvious fact is mentioned because nearly everyone outside the Training Centre, soldiers and civilians alike, is eternally forgetting the existence of the "other ranks". And if their existence goes unnoted, so likewise does their training. It is not intended to compare the relative importance of the two groups: I merely wish to emphasize the fundamental necessity for the training of the other ranks in the building-up of an efficient Medical Corps.

When the Training Centre started it was proposed that all medical men joining the army should be required to take the course and qualify before they were posted to units. This was impossible in the urgency of the situation at that time, and consequently, the proposal never took the form of an order and was frequently sidestepped. Age, service in the last war, N.P.A.M. experience, etc., were all dragged in to bolster up the evasions, and only those hapless beings without the right approach were doomed to "waste" five weeks (it was six in the beginning) at the Training Centre. This feeling of its being wasted time was, unfortunately, the general attitude towards the training at first.

This has been changed for the better now, and each incoming officer recruit is, with only the occasional exception, exposed to the sometimes uncomfortable, but always beneficial, influences and training of the Centre. That it is beneficial is attested to by those who go through our hands, and by the District Medical Officers from the various districts. I feel that no exceptions to taking the training should be made.

For the past year most of the medical men going into the Army have been young practitioners, plus an increasing number of men who have just finished eight months' internship. These latter are young, energetic and pliable, the type needed for a young man's war. Medical men are admitted to the army with the rank of Acting Captain if they have had a licence to practise medicine in Canada for two years, and with the rank of Lieutenant if they have just graduated or finished their internship. On the completion of their course at the Centre they may be confirmed in the rank of Captain on a mysterious thing known as the General List.

Training for the men starts at a Basic Training Centre, where they are taught how to march, to know their right foot from the left, to tell the difference between a general and a sergeant-major, in short, the elements of how to be a soldier. After two months they go to an Advanced Training Centre, where they learn the things peculiar to their particular branch. It is possibly unfortunate that this system is not followed in the case of medical officers. They do not have the salutary effects of basic training. They go straight to the advanced Training Centre. We have therefore two groups or classes of people to instruct: the M.O., usually with little or no army experience and the men, who make up the bulk of the Corps, and who have had a small amount of training.

To labour the point a little further: the M.O. comes to the Training Centre generally in a state of blissful ignorance of the army. This is his first handicap. Further, he has the unconscious "awareness" (and it is the toughest of all illusions to dispel) that he is a doctor joining the army to go on being a doctor. He apparently does not know that the army is made up of soldiers. Perhaps this is not altogether his fault. He belongs to a profession which, as a whole, is not famous for its conformity with routine. By training, by tradition, often by temperament, the medical man tends towards individualism. The army, on the other hand, cannot function as a group of individualists, and automatically withdraws as it were the hem of its garment from any such tendencies. "There is a military spirit and there is a civilian spirit. The two are at enmity" (Macphail). This has some truth in it, and it is one of the important functions of this Training Centre to teach this truth to medical men when entering the army.

The time allotted for giving the M.O. his ground training for the army is five weeks. That is not nearly long enough, but we must presume that the Centre is meant only to start him on the right path, and that he will get further training from his unit. Whether or not he does get it I will not venture to say.

What do we teach at the Centre? We know that there are such things as war medicine and war surgery. These are of the highest importance, but they cannot be taught at the Training Centre. Our function is to deal with

the military side. The subjects taught are as follows:

COMMON TRAINING

	Periods allotted
Drill (includes stretcher drill)	26
Physical training	24
Unarmed combat	14
Marching	
Map reading	18
Military law	12
Protection against gas	15

R.C.A.M.C. TRAINING

Medical boards	5
M.I.R. instruction	4
Vehicle instruction	4
Hospital ward rounds (on paper only)	0
Infantry weapon instruction	4
Hygiene and sanitation demonstration	4
Pistol instruction	4
Tutorial	4
Lecturettes	12
Organization	14
Administration	7
Tactics	73
War gases	8
Miscellaneous (paying of compliments, etc.)	16
Selection of personnel boards	13
Q.M. stores	4
War medicine and surgery	4

Periods are also allowed for study and discussion.

All these and others less easily defined in the syllabus, or not defined at all, are taught in this short time.

How much of all these subjects does the M.O. absorb? Very little indeed. Nor is he expected to do otherwise. The novelty of his new life, the novelty and apparent lack of relationship between what he is taught and what he thinks he is going to do in the army, the surroundings in which he has to work, all make this inevitable. But in most instances he has the capacity to fit into army life in the course of time, and the metamorphosis is quickened by the training he receives at the Centre.

The transition from M.D. to M.O. is interesting to watch. It is a fair principle that a good soldier makes a better M.O. It is a fair principle that an M.O. must be a good soldier before he can make a good M.O.

What's wrong with modern therapeutics goes back to the source of most failures, namely, lack of knowledge and the weaknesses of human nature. That being the case, it will be many a day before most of our shortcomings in the field of therapeutics will be remedied. In the meanwhile, more and better education of both medical men and the public will shorten the time to the therapeutic millenium.—*J. Am. M. Ass.*, 1942, **119**: 1069.

WIRE SUTURING IN THE TREATMENT OF FACIAL FRACTURES

By Lt.-Col. Stuart D. Gordon, M.B., M.S., F.R.C.S.(C), R.C.A.M.C.

WIRE suturing has been used in the treatment of twenty-four patients suffering from fractures of the facial bones. Its use has proved of very definite value in certain groups of cases. This report proposes to indicate these groups, and to give illustrative examples.

The use of wire suturing in bone is not new, particularly in mandibular fractures. The procedure has been frowned upon in the past because of the complications which have followed its use. In this series of 7 malar, 2 maxillary and 15 (1 condyle) mandibular fractures only 3 infections occurred. As indicated below, 2 of these were of soft tissue only. The third, an angle fracture of the mandible, received late in a rather dirty state, developed osteomyelitis. There were no other complications. It is hoped to report a detailed analysis of the mandibular group at a later date. The re-introduction of the method is felt to be justified, primarily because of the use of a non-irritating metal—stainless steel—and, to a lesser degree, improvements in chemotherapy.

Open reduction and wiring of facial fractures permits of accurate reduction, and of actual local fixation. This local fixation must not be regarded as a splint. Therefore other measures to maintain fixation should be carried out. A fracture of the malar, with separation at the external angular process, may be held sufficiently well by wiring at the process. Comminution of the body of the malar bone, on the other hand, will require after wiring either traction or antral packing. All fractures of the mandible treated by wire suture need in addition some type of intra-oral fixation. It is very important that movement at the fracture line after the introduction of a foreign body be kept at the absolute minimum.

MALAR FRACTURES

Buried wire suture in the treatment of fractures of the malar bone has been used in two groups of cases. The first group is made up of those cases in which there is little or no comminution, but with marked depression of the malar body, and in which separation occurs at the external angular process. Even if the bone is replaced within the first forty-eight hours

there is a tendency for a certain amount of the deformity to recur. Wiring together of the fragments, after elevation, results in accurate reduction and prevents any recurrence of the deformity. The incision, placed in the outer half of the eye-brow, is well hidden.

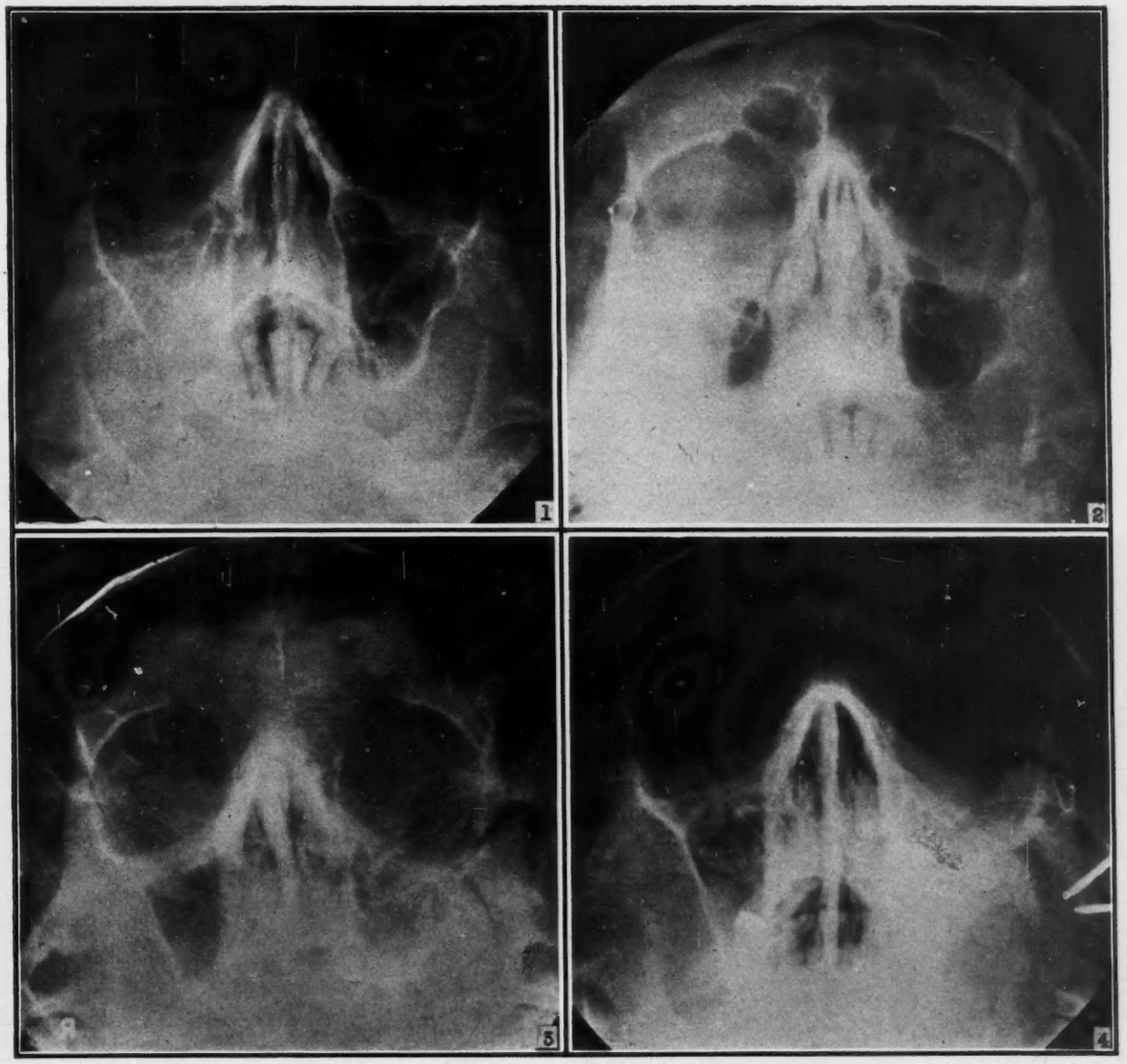
CASE 1

G.B.K. suffered a depressed fracture of the right malar, with diplopia, and numbness in the right cheek on April 8, 1942. Open operation 36 hours later. Right malar elevated through temporal incision; wire suture at external angular process, antrum packed. Discharged April 28, 1942, with the malar bone united in excellent position; no diplopia; still anæsthetic over the distribution of the right infra-orbital nerve (Figs. 1 and 2).

Comminuted fractures of the malar may lend themselves to treatment by this method. An incision is made over the fracture, usually over the outer lower corner of the orbit. The fragments are wired together, using a single wire circumferentially, rather than attempting to wire fragment to fragment.

CASE 2

J.S. suffered depressed comminuted fracture of the left malar, with diplopia, and numbness over the left cheek on March 29, 1942. Open reduction done on May 6, 1942. Elevation through temporal incision; second incision lateral to the left eye; the three fragments were wired together; main fragment controlled by pinning. Discharged on May 26, 1942; slight diplopia on looking down; still number over left cheek (Figs. 3 and 4).



Figs. 1 and 2. (Case 1).—Depressed fracture of the right malar before and after treatment by elevation by the Gillies-Kilner method, and insertion of wire suture at the external angular process.

Figs. 3 and 4. (Case 2).—A comminuted fracture of the left malar is shown. The wire suture is holding three fragments. The position of the malar has been controlled by pinning, the ends of the pins just showing in the postoperative picture.

MAXILLARY FRACTURES

Wire suture is less applicable in fractures of the maxilla than in the treatment of fractures of the malar or mandible. The two cases in which we have used it are detailed below.

CASE 3

S.L. suffered a badly comminuted fracture of the left malar and upper part of the maxilla, on October 4, 1942. The antrum was packed on October 6, 1942, but satisfactory position could not be obtained due to the lateral wall swinging out when pressure was put on the packing. The lateral wall was therefore wired together just above the roots of the molars. Discharged October 20, 1942, united in good position (Figs. 5 and 6).

CASE 4

H.C.H. fractured maxilla, malars, nose and left fibula on July 1, 1942. The maxillary fracture was not united by October 20, 1942, so on that date an exploratory operation was done. To aid in the fixation of the still loose maxilla the upper and lower fragments of the anterior wall of the right antrum were wired together (Fig. 7).

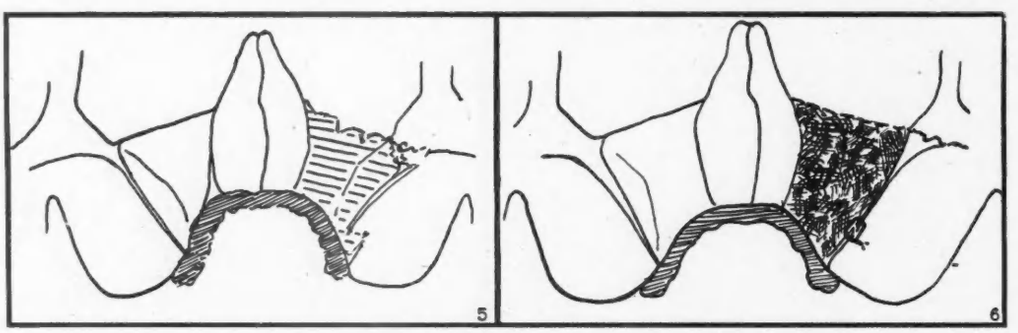
In both cases 3 and 4 the wire was placed through an incision in the upper buccal sulcus. To date, no complication has arisen as a result of this method of application.

MANDIBULAR FRACTURES

Wire suture or inter-osseous wiring has been used most frequently in mandibular fractures in this series. The method has proved of great value in fractures at the angle, and is applicable in fractures of the edentulous mandible.

CASE 5

W.K. suffered a fracture at the angle of the right mandible just in front of the 3rd molar, which was loosened, on July 16, 1942. Open reduction was done on July 17, 1942. The molar was extracted; two inter-osseous wires were inserted through an incision just below the angle; and the jaws were fastened together with interdental and intermaxillary wires. Intra-oral splinting was removed on August 27, 1942. Discharged on September 4, 1942, with the mandible solidly united in excellent position (Figs. 8 to 11).



Figs. 5 and 6. (Case 3).—Sketches of pre- and post-operative pictures. The pre-operative picture indicates the comminution of the orbital floor, the displacement of the left lateral antral wall, and the hæmatoma in the antrum. Position obtained by wire suture in the lateral wall, and by packing of the antrum, is shown in the second picture. Thirty-gauge stainless steel wire was used, and did not show up well enough in the post-operative x-ray plates to reproduce.

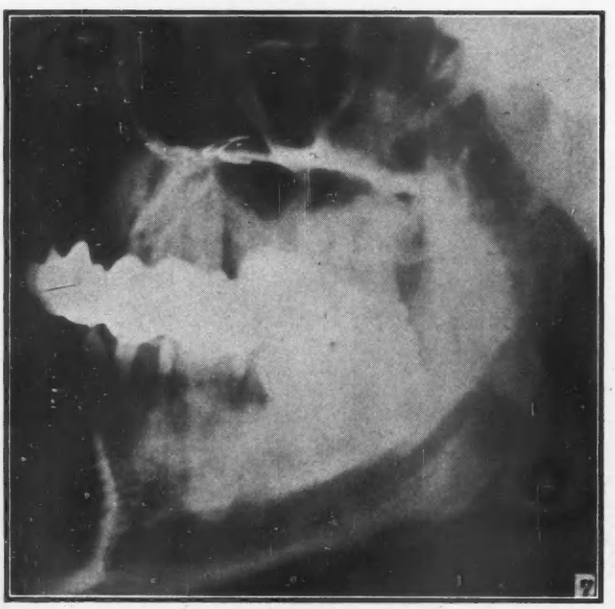
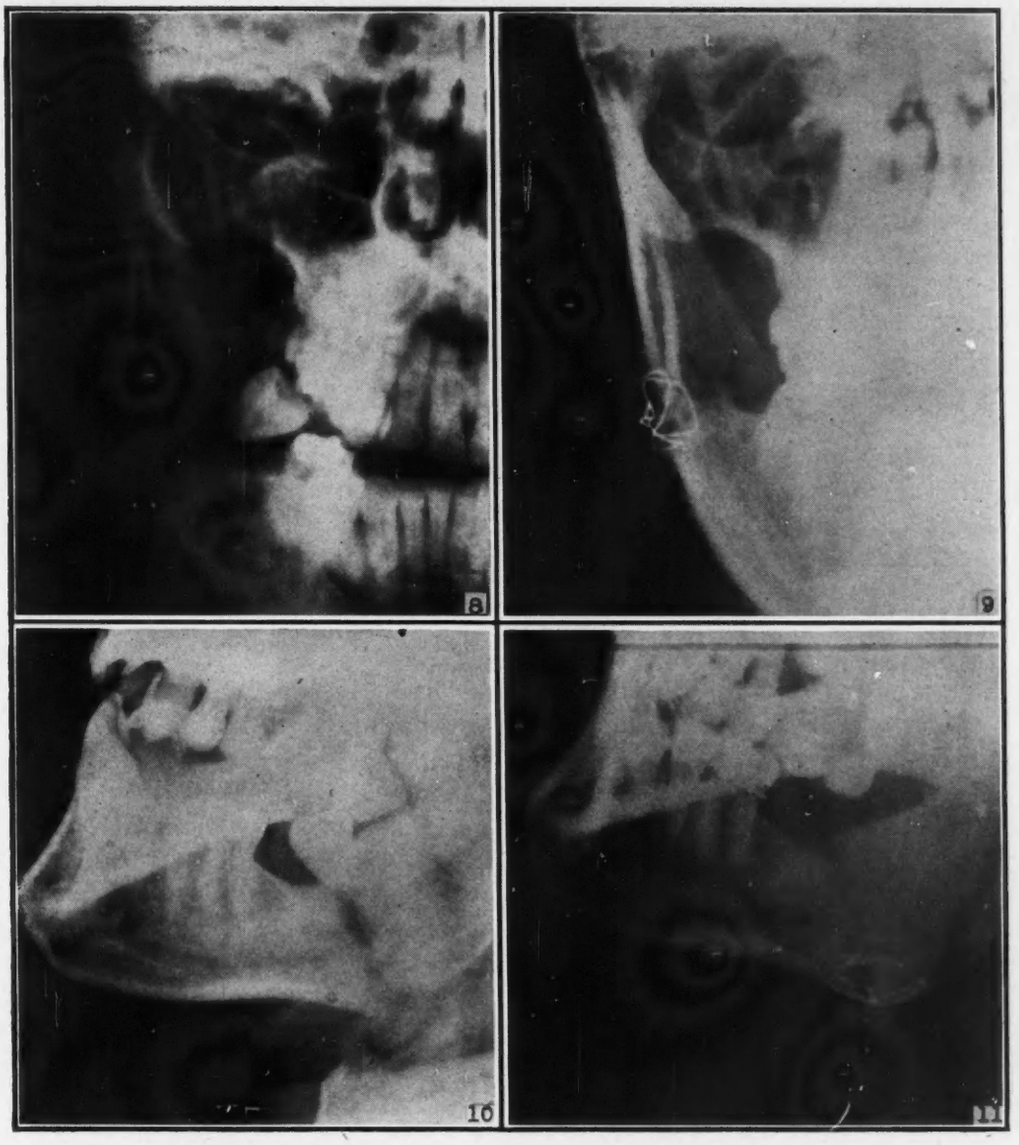


Fig. 7. (Case 4).—The location of the wire suture is shown. The position is maintained by a cast sectional splint cemented on the maxillary teeth. (Splint designed and applied by Major G. Franklin, C.D.C.).

INFECTION

Soft-tissue infection developed within the first week after wire suturing in one case of malar fracture. The infecting organism was a *Staph. aureus*. Drainage was done. The wire was not removed. Healing took place within two weeks and no further trouble has developed.

A similar experience occurred in one mandibular case. Here the soft tissue infection became evident within the first week, subsided after drainage, and recurred after two months. Drainage was done again, the wire being left in place. There has not been any further trouble. The patient who developed osteomyelitis was admitted, as stated above, late, and in a rather dirty condition. The prognosis regard-



Figs. 8 and 9. (Case 5).—Reproductions of the pre- and post-operative x-ray plates. The post-reduction plate shows the position obtained, the site of the wire suture, and the fact that the third molar was extracted.

Figs. 10 and 11. (Case 5).—Reproductions of the lateral x-ray plates.

ing infection was unfavourable from the start, irrespective of the type of treatment given.

All cases in which local infiltration anæsthesia was used did not have sulfonamide placed in the wounds before closure. The remainder did. No difference in the postoperative course of the two groups was seen, but the numbers are too few to be of any real significance.

CONCLUSION

The use of buried stainless steel suture has proved valuable in the treatment of fractures of the facial bones. The wire has remained in place in spite of soft tissue infection, and in two cases was inserted through an incision in the oral mucous membrane without complication. Its use has allowed of accurate reduction, being fixed locally and, in the case of the mandible, has been invaluable in controlling fragments that otherwise would be difficult to manage.

RÉSUMÉ

Les fractures de la face, notamment des os malaires et des maxillaires bénéficient nettement de la suture au fil métallique d'acier inoxidable. Au cas d'infection des tissus mous, les sutures sont demeurées en place et chez deux malades les fils ont été posés par voie buccale après incision de la muqueuse jugale, et cela, sans complications. Il n'est pas encore certain que l'adjonction de sulfamidés *in situ* soit nécessaire.

JEAN SAUCIER

DERMATOSCLEROSES*

By Paul A. O'Leary, M.D.

Section on Dermatology and Syphilology, Mayo Clinic, Rochester, Minn.

THERE is a group of diseases which have as a common feature varying degrees of solid œdema of the skin, and, although the type and location of the œdema when present in its classical form are characteristic, there are certain phases or periods in the course of each of these diseases in which the clinical features are such as to create confusion and considerable difficulty in distinguishing one from the other. The diseases included in this category are sclerœdema adultorum, scleroderma, acrosclerosis and dermatomyositis. The term "dermatoscleroses" has been applied to this group because the diseases in it have at some time during their course the common feature of hardening of the skin. Involvement of the musculature is common to all except sclerœdema. Although sclerosis of the skin may be present at some time in the course of each of these conditions it is a variable finding, varying so much in extent, degree and permanency that its presence in each case should be looked upon as a symptom rather than as the outstanding feature.

A survey of the literature for the etiological factors of these diseases has been unproductive of conclusive positive findings, and, in fact, has been disappointing. Since the cause of each disease has been sought independently, many factors, such as infection, neurovascular involvement, arsenic, glandular dysfunction, and so forth, have been suggested, but not proved as the causes of any of these diseases. More recently Klemperer, Pollack and Baehr[1] have suggested that diffuse collagen disease may account for the resemblance of certain of *these diseases to each other.*

In addition to solid œdema and sclerosis of the skin there are several other features which are common to these diseases: in many of the cases there is a tendency for the cutaneous involvement to be self-limited. In such patients, as the œdema involutes, varying degrees of atrophy and residual pigmentation ensue. Another common feature is generalized pigmentation, which in some cases is pronounced and permanent, and in others is less prominent and transitory. The comparative mildness of the constitutional symptoms at the outset, the lack of, or at least the mild degrees of, fever at the onset of the diseases and the laboratory data, such as a normal leukocyte count and rate of sedimentation of the erythrocytes, suggest that a well-known bacterial agent is not the cause of the diseases.

Muscular involvement is seen some time during the course of scleroderma, acrosclerosis and dermatomyositis. In the latter it is a primary feature of the disease, whereas in the other two muscular involvement is a less prominent feature, develops late in the course, and appears to be secondary to and somewhat masked by the overlying cutaneous affection. Osteoporosis is another late manifestation of these three conditions, appearing first in the terminal phalanges and later developing in the larger bones of the hands and feet as dysfunction of the extremity becomes more marked. Calcification of the skin, underlying tissue, and muscles is also common to these three diseases. Ulcerations of finger tips, knuckles, elbows and knees are not infrequently associated with chalky excretions, and numerous deposits of calcium may be demonstrated by the roentgen rays in various areas of the body. Although diffuse calcinosis has occurred in several of my patients as a terminal manifestation, localized calcinosis has, on more than one occasion, been noted to "melt out" as the ulcerations heal, and the progress of the disease has been arrested. Values for blood calcium have been within normal limits in most of these patients.

All four of these diseases have been known for many years. Sclerœdema was described by Buschke[2] in 1902. Scleroderma was first mentioned by Zacutus[3] in 1634. Raynaud[4] recognized acrosclerosis shortly after he so vividly discussed the syndrome that bears his name, and the description of dermatomyositis first appeared in the literature in 1904, when Steiner[5] published a paper on "Polymyositis with cutaneous involvement".

Little if any information has been gained in regard to the cause of any of these diseases since their original descriptions, and but little clinical knowledge has been added.

A brief description of the four diseases follows.

* Read before the Seventy-third Annual Meeting of the Canadian Medical Association, Jasper Park, Alberta, Canada, June 15 to 19, 1942.

CLINICAL ASPECTS

Sclerœdema adultorum.—This usually follows in from one to six weeks an acute infectious disease such as influenza, tonsillitis, or scarlet fever. The appearance of œdema frequently on the sides of the neck, followed shortly by œdema of the face or upper part of the chest and abdomen may be the first clinical signs noted. The stiff, rigid, restraining skin usually reaches its maximal degree of involvement by the second week, rarely longer, and although movements of the affected parts are restricted, pain in the involved area is conspicuous by its absence. The minute markings of the skin are preserved, while the colour is pale and erythema is absent. Palpation of the skin gives the sensation of thickness of a deep resistant type. The skin cannot be picked up in folds and appears to be bound to the underlying cutis. No pitting results from firm pressure, and the borders of the indurated areas are not well defined, as they merge gradually into the normal skin. The patient appears as though he had been poured, so to speak, into the skin of his trunk and neck (Fig. 1). The fact that the hands and feet nearly always remain uninvolved is worthy of special mention. No sequelæ of significance are noted in the skin after involution of the sclerœdema.

Laboratory data yield little of diagnostic significance in any of these cases. The disease tends to involute spontaneously in periods varying from three months to a year, occasionally two or three years, and recurrences during such an interval are not rare.

A specific treatment for the disease is not

Fig. 1.—Early sclerœdema which followed an attack of tonsillitis. **Fig. 2a.**—Œdema of cheek. **Fig. 2b.**—Tapered fingers and bowed fingernails of patient who had early acrosclerosis. **Fig. 3.**—Early acrosclerosis: appearance of hands of patient in Figs. 2a and 2b. **Fig. 4a.**—Mild œdema of the face. **Fig. 4b.**—Forearms of a patient who had early dermatomyositis.

known, although I[6] believe the use of foreign protein therapy in the form of typhoid vaccine hastens involution when it is used in conjunction with physiotherapy.

Scleroderma.—This is the most common of these four diseases; hence its clinical picture is the most familiar. Scleroderma may be of two types: generalized or localized. The localized form may appear as localized patches of tawny, shiny skin, in which case it is known as "morphœa"; or it may be observed in streaks, in which case it is called "linear scleroderma". The small, papular type is known as "guttate scleroderma". When the fingers become sclerodermatous, the term "sclerodactylia" is applied. Since this discussion applies to the generalized type of scleroderma, the localized manifestations will not be dealt with further.

The onset of generalized scleroderma may be gradual and insidious, or the disease may be ushered in as an œdematous process indistinguishable from sclerœdema adultorum. Pain, swelling and stiffness of the joints, usually of the hands, are the most common early indications of scleroderma and are usually misinterpreted as "arthritis".[7] Vasomotor symptoms of the extremities are present in about a third of the patients at the onset of the disease. The stiffness of the entire skin, limitation of motion, the decrease in the normal wrinkles with loss of expression of face when it is involved, and the appearance of a sheen and a waxy hue of the skin, are the early signs of cutaneous involvement. Later, the hard, wax-coloured, fixed skin develops. Involvement of the hands and fingers (sclerodactylia) may appear at the outset or later in the course of the disease.

The course of the disease is, as a rule, protracted, although occasionally spontaneous remissions occur, a fact which must be borne in mind in appraising any therapeutic program for scleroderma. Death occurs in about 10% of the cases several years after the onset as the result of diffuse sclerodermatous involvement of the viscera. Therapeutic attention or the comparatively mild course of the disease in certain patients results in arrest of its progression in approximately 25% of cases.

There is no specific treatment, because of the unknown etiology. Many therapeutic plans adopted on the basis of various etiological concepts have been found wanting. Thyroid extract, physiotherapeutic measures, fever therapy, and cervical sympathectomy are only a few of the many suggestions made. In my own experience the avoidance of cold climate and the use of mild massage after the application of dry heat have been the most helpful when the disease is mild. In the severe forms, in which visceral involvement is manifested early in the course of the disease, death usually occurs in a few months or years, in spite of treatment.

Acrosclerosis.—This is the term applied by Sellei[8] to the condition of patients who have a certain type of scleroderma in association with vasomotor disturbances of the extremities. Raynaud discussed this complex shortly after he described the disease which bears his name. The sclerodermatous involvement has apparently been accepted as the paramount problem, and slight attention was paid to the vasospastic phenomena until Sellei endeavoured to separate the disease from the group of diffuse scleroderma. I have endeavoured to carry the distinction further, and believe that acrosclerosis is primarily a vasospastic disease in which hardening of the skin is a prominent sign.

The disease differs from diffuse scleroderma in several ways. The onset is usually in the fingers, the vasospastic disease having been present for a month or more before the sclerodactylia develops. In certain patients the sclerosing and vasospastic phenomena appear simultaneously, whereas in the rare cases Raynaud's disease may follow the hardening of the skin by several months. After, or, approximately simultaneously with, involvement of the fingers, the face becomes involved (Fig. 2a), and this is followed by similar changes in the skin of the shoulder girdle and upper part of the chest. The patient's attention is first called to the facial involvement because of inability to open the mouth as wide as formerly. The wrinkles disappear from the forehead, about the eyes, and the lips become tight and small, while the nose is pinched and the cartilage at the tip becomes prominent. The tight skin, although tightness is already palpable, does not have the wax colour nor is it as hard as is noted in diffuse scleroderma. In women the infiltration of the skin may extend to involve the upper part of the breasts, where the border can readily be palpated and outlined, but otherwise it is difficult to determine where the border between the normal and involved skin appears. The forearms become involved when the disease is more serious, but it is rare that the lower limbs show any infiltration. The

distribution is virtually the same in all cases of acrosclerosis, and is in contrast to the involvement of diffuse or generalized scleroderma, in which the entire surface of the skin may be sclerodermatous, or in which the infiltration will involve large sections of the trunk or extremities.

Involvement of the œsophagus is not uncommon in acrosclerosis, producing signs of œsophageal obstruction which may need occasional dilations.

The sclerodactylia of acrosclerosis is rather characteristic. The tapered fingers, with bowed finger nails (Figs. 2b and 3) and an inability to clench the fingers into a fist appear early, while ulcerations of the finger tips and knuckles appear in the claw-like hands of patients who have advanced forms of the disease. Gangrenous destruction of fingers when the disease is severe results in mutilated hands, with only stubs of fingers remaining. Scleroderma, or Raynaud's disease, seldom if ever produces such loss of fingers.

The course of acrosclerosis is more benign than that of comparable types of scleroderma. I have observed patients who have had the disease for twenty-five years in whom the infiltration of the skin had melted after having been present approximately ten years. The resulting skin showed mild degrees of atrophy, with spotted pigmentation but no palpable induration. In certain of the cases in which involution occurs the skin appears somewhat hidebound, at least more so than is noted among normal persons, but the induration or infiltration is absent and the skin can be picked up in small folds.

Because the disabilities are milder in acrosclerosis the prognosis as to life and physical activity is better than in scleroderma, even though the occasional patient will have only remnants of the fingers left. Vasospastic disease in certain cases moderates somewhat, so that colour changes in the fingers are less severe, occur less frequently, and require greater stimuli in the form of cold or emotional upsets than at the outset of the disease.

The treatment of acrosclerosis also is symptomatic. Cervical sympathectomy does not produce the same degree of relief as is noted when it is employed in frank Raynaud's disease. Change to a mild, warm, dry climate, mild massage to the extremities, and the avoidance of severe emotional disturbances contribute to more comfort. More recently, it appears that prostigmine methylsulphate has helped somewhat in arresting the progress of the disease.

Dermatomyositis. — "Dermatomyositis" and "polymyositis" are terms which have been used interchangeably since Steiner[5] described the former in 1904. Brock[9] emphasized the point that if it is understood that dermatomyositis is a non-purulent, non-hæmorrhagic type of polymyositis with an associated inflammation of the skin, it immediately clarifies one's concept of the disease. Dermatomyositis is characterized by inflammation and degeneration of either a small group of muscles, many muscles or the entire skeletal musculature. The onset may be acute with severe and rapidly progressive symptoms, or the disease may appear in a mild chronic form, localized to a few muscles and running a protracted course with only mild inconvenience to the patient.

The onset of dermatomyositis is often heralded by muscular, cutaneous or vasomotor signs with muscular pain and weakness as the most common complaints. In a slightly smaller percentage of cases, œdema and cutaneous lesions usher in the attack. The muscular involvement does not follow any constant sequence or regularity, although bilateral distribution is the rule. The consistency of the muscles may be normal, soft and doughy or tough, firm and fibrous, and the degree of muscular pain and tenderness is not in proportion to the amount of palpable muscular involvement. Weakness of special muscles may be noted by the appearance of diplopia and lack of control of the anal sphincter. Muscular atrophy is a late sequel of the disease.

The cutaneous changes in dermatomyositis are diverse, and account largely for the variability of the clinical picture[10] (Figs. 4a and 4b). Œdema occurred frequently among most of my patients as a firm localized process, although in an occasional patient it was generalized. The œdema does not always overlie the groups of muscles in which the inflammatory reaction is most pronounced. In other words, œdema of the skin and muscular involvement are in some cases independent of each other.

Erythema, pigmentation and atrophy also are present in varying degrees, to such an extent that it is not possible in a condensed review such as this one to describe each of the cutaneous manifestations in detail. I have observed several patients who presented a cutaneous picture clinically not unlike that of

lupus erythematosus disseminatus. However, the histological observations in dermatomyositis are not compatible with those seen in the usual case of lupus erythematosus disseminatus.

The laboratory findings are not of much diagnostic aid. The leukocyte count rarely exceeded 10,000 per c.mm., the eosinophile count was usually less than 5%, although a mild increase in the rate of sedimentation of the erythrocytes was frequently noted. Values for creatine in the urine varied from 250 to 1,100 mg. in twenty-four hours and the highest values were noted when the disease was acute and severe.

The course of dermatomyositis varies with the severity of the process. If only a small group of muscles is involved they soon become organized into fibrous bands with restricted function. In such patients the disease may remain stationary or only very slowly progressive for ten years or more. When involvement is extensive, however, marked deformities with ankylosis of joints may ensue, or death may occur a year or so after the onset of the disease. When vital muscles are involved, such as the heart, intercostal muscles and the muscles which regulate swallowing, death ensues rather early in the course of the disease.

PATHOLOGICAL OBSERVATIONS

Sclerœdema.—The significant histological finding in sclerœdema is in the cutis, where the collagen bundles appear somewhat swollen, stain homogeneously and are separated by clear spaces. The alterations in the connective tissue are not outstanding; in some cases the pars papillaris was found to be moderately homogenized. The blood vessels occasionally contain a perivascular infiltrate of lymphocytes and fibroblasts. The underlying muscle showed no abnormalities in the few cases in which muscle biopsy was performed.

There is a disproportion between the clinical and pathological observations in sclerœdema because of the comparatively mild pathological changes in a skin which shows pronounced clinical evidence of an infiltration of some type.

Scleroderma.—In scleroderma the pathological observations are more pronounced, and vary according to the phase of the disease in which the examination is made. The changes, according to Montgomery,[11] consist essentially of œdema, homogenization, fibrosis, and sclerosis of the collagen fibres, and a v[illegible] of sclerosis and obliterative cha[illegible] in the blood vessels predominates from the beginning, some vessels becoming thrombotic. The collagen fibres show atrophic changes early and the appendages likewise atrophy.

When scleroderma is severe, the muscles show homogenization, and also atrophy which is apparently secondary to obliterative changes in the interseptal blood vessels. This is one of the distinguishing features from dermatomyositis, augmented by the absence of multiformity of degeneration of muscle fibres as noted in dermatomyositis. Varying degrees of increased melanin pigmentation also may be seen.

Acrosclerosis.—The histopathological changes in the skin of patients who have acrosclerosis are similar to those of diffuse scleroderma.[12] In the cutis the collagen appears in compact, homogeneous bundles, while the subcutaneous fat may be replaced by connective tissue. The elastic fibres are fragmented, swollen and decreased in quantity. In the blood vessels the endothelial cells are swollen and the walls are thickened, at times to the point of occlusion. An increase in melanin pigmentation occurs in some cases and the skin appendages are wasted or absent, although the sweat glands seem well preserved and in some sections appeared abnormally close to the surface of the skin, due to atrophy of the cutis. The changes in muscles are not constant, but some homogenization of the muscle bundles occurs.

Dermatomyositis.—In dermatomyositis the chief pathological changes are noted in the muscles, whereas the cutaneous changes are non-specific and varied, depending on the type and degree of the cutaneous involvement. There is primary parenchymatous involvement of the muscle bundles, with granular, vacuolar and hyaline degeneration. Loss of striation, homogenization of the muscles and a secondary inflammatory invasion occurs. Early in the course of the disease the inflammatory reaction predominates, whereas when the disease is long-standing attempts at muscle repair are seen, with proliferation in the muscle. Nuclei can be seen next to areas of fibrosis. The blood vessels show no significant changes, and this lack of vascular change, together with the multiplicity of changes in muscles, distinguishes dermatomyositis from scleroderma. The non-specific character of the cutaneous changes and the

morbilliform character of the cutaneous picture, make discussion of these changes impracticable in this report.

The suggestion of Klemperer, Pollack and Baehr, that alteration in the collagen tissues is a possible explanation for such diseases as scleroderma, sclerœdema and disseminated lupus erythematosus, is interesting. I am in accord with them in so far as there is evidence in sclerœdema and scleroderma of some such change, but in my experience the substance is not recognizable or stainable by present staining techniques.

SUMMARY

I have endeavoured to point out the similarity between sclerœdema, scleroderma, acrosclerosis and dermatomyositis. It is usually difficult to distinguish between these diseases in the early phases, due to the fact that cutaneous œdema of the solid or non-pitting type is common to all of them. When the disease is long established and frank the differential diagnosis is less difficult.

Muscular involvement is absent in sclerœdema, but it is the seat of difficulty in dermatomyositis, whereas in established cases of scleroderma and acrosclerosis varying degrees of wasting of muscles are presented. Although these diseases have numerous clinical features that are common to all four, lack of knowledge as to their cause makes it impossible to form deductions as to their relationship. Sclerœdema follows shortly after streptococcic infections; scleroderma has no outstanding known etiological agents; acrosclerosis seems to be primarily associated with vasospastic disease; and dermatomyositis has the earmarks of an infectious process. At present, treatment for all of these conditions is on an empiric and symptomatic basis.

REFERENCES

1. KLEMPERER, P., POLLACK, A. D. AND BAEHR, G.: Diffuse collagen disease. Acute disseminated lupus erythematosus and diffuse scleroderma, *J. Am. M. Ass.*, 1942, **119**: 331.
2. BUSCHKE, A.: Ueber Scleroedem., *Berl. klin. Wchnschr.*, 1902, **39**: 955.
3. ZACUTUS, L.: Sclerodermie. In J. Jadassohn: Handbuch der Haut- und Geschlechts-krankheiten, Berlin, Julius Springer, 1931, vol. 8, p. 718.
4. RAYNAUD, M.: On local asphyxia and symmetrical gangrene of the extremities (Translated by Thomas Barlow), London, The New Sydenham Society, 1888, 64 pp.
5. STEINER, W. R.: Dermatomyositis, with report of a case which presented a rare muscle anomaly but once described in man, *J. Exper. Med.*, 1904, **6**: 407.
6. O'LEARY, P. A., WAISMAN, M. AND HARRISON, M. W.: Sclerœdema adultorum, *Am. J. M. Sc.*, 1940, **199**: 458.
7. O'LEARY, P. A. AND NOMLAND, R.: A clinical study of one hundred and three cases of scleroderma, *Am. J. M. Sc.*, 1930, **180**: 95.
8. SELLEI, J.: Sklerodermie und Schleimhaut, *Arch. f. Dermat. u. Syph.*, 1934, **170**: 464.
9. BROCK, W. G.: Dermatomyositis and diffuse scleroderma: differential diagnosis and reports of cases, *Arch. Dermat. & Syph.*, 1934, **30**: 227.
10. O'LEARY, P. A. AND WAISMAN, M.: Dermatomyositis; study of 40 cases, *Arch. Dermat. & Syph.*, 1940, **41**: 1001.
11. MONTGOMERY, H.: Personal communication to the author.
12. O'LEARY, P. A. AND WAISMAN, M.: Acrosclerosis, *Arch. Dermat. & Syph.*, 1943 (in press).

LEIOMYOSARCOMA OF THE SMALL INTESTINE

By J. A. Rankine, M.D., C.M.

Cleveland, Ohio

MALIGNANT tumours of the small intestine are rare. Of 986 tumours of the gastrointestinal tract collected by Raiford[18] only 88, or 9%, were in the small intestine, and of these 14 were in the jejunum. No cases of leiomyosarcomata were reported in this series. According to Brink and Laing[2] about 250 sarcomata of the small bowel have been reported in the literature, of these only 14 were leiomyosarcomata. Since that time 8 more have been added, bringing the total to 22.

The etiology of these tumours is still a matter of conjecture. The most plausible theory at present is that they represent embryonal rests. This theory of origin was first advanced by Cohnheim,[4] and is now generally accepted as the origin of the leiomyomata found in the uterus. If we accept this view then we must discard the theories that fully developed smooth muscle cells can form tumours, or smooth muscle cells can be formed by metaplasia from fibroblasts, histiocytes or myeloblasts. It has been said by some writers that these tumours are a result of malignant changes in benign leiomyomata, which are not uncommon in the gastrointestinal tract. Oberndorfer[17] says that all stages from the benign to the malignant may occur. Ewing,[7] on the other hand, says, "It is not to be assumed without adequate proof that a malignant myoma represents the transformation of a previously benign tumour. Many, and probably the majority, of these tumours, are malignant from the first." Melnick[15] reports cases of apparently benign leiomyomata with metastases, but neither the primary lesions nor the metastases present the necessary criteria of malignancy. Zeit[22] believes that these seemingly benign growths metastasize by emboli to the liver where they are ordinarily destroyed, but some may escape to form benign metastases.

The usual site of these tumours is in the upper part of the small intestine; in 18 cases reported by Anderson and Doob,[1] 10 were in the jejunum, 2 in the duodenum, 1 in the ileum; the exact site of the others was not recorded. Another report of 15 cases showed 2 in the duodenum, 12 in the jejunum, 1 in the ileum. Skinner and Walters[19] report a case occurring in a Meckel's diverticulum, which was suspected from clinical and laboratory findings, noted on x-ray films, subsequently removed at operation and proved to be a leiomyosarcoma. Two other cases have been reported in a Meckel's diverticulum.

These tumours occur as two general types, one, the sub-mucous projecting into the lumen of the intestine in the form of polyp-like growth, two, the sub-serous projecting from the surface of the bowel, usually from the anti-mesenteric border, but not invariably. Demel[5] suggests that the sub-serous variety arises in the muscularis propria, and the sub-mucous from the muscularis mucosæ. Some are of the opinion that these tumours arise from an indifferent matrix which is potentially myogenic. From the widespread sites of leiomyosarcomata it has also been suggested that these tumours arise from the muscle in the walls of blood vessels, but this view is disputed by others who point out that they are found only where there is smooth muscle besides that found in the walls of blood vessels.

The sub-serous variety is the more common, in one series of 18 cases in which the site was recorded, 13 were sub-serous and 5 were of the sub-mucous variety. The sub-serous forms are pushed outward by the contractions of the muscularis propria, growth occurring at the expense of the extra intestinal tissues. They have a fair-sized base and are rarely pedunculated. The size varies from the size of a walnut to that of a baby's head. An abdominal mass is frequently the presenting symptom. Adhesions between the tumour and surrounding bowel and omentum are not uncommon; traction on these adhesions gives rise to pain and the formation of traction diverticuli. These tumours do not invade surrounding structures. Ulceration, hæmorrhage, and perforation are frequently seen in this kind.

The sub-mucous variety, arising in the muscularis mucosæ, is pushed inward by the contraction of the circular muscle layers. It is usually pedunculated, causing early obstructive and irritative symptoms. It is smaller than the sub-serous type because it gives rise to symptoms earlier, and hence is discovered much sooner. The overlying mucosa is intact early, but eventually it is invaded and ulcerated. The base may ulcerate so that the tumour is set free to pass per rectum.

Grossly, these growths are pale white to pink in colour, hard, coarse, nodular, rather non-vascular, prone to degenerate in the centre, forming small cysts; other regressive changes often noted are hæmorrhage, fatty and hyaline changes, necrosis and calcification. The cut surface of the tumour has a ruffled, glistening, pale grey to yellowish white resilient surface; areas of hæmorrhage, both recent and remote, are frequently seen; other degenerative changes particularly neerosis and ulceration, usually on the mucosal surface, are often noted. In one series of 19 cases, ulceration of the mucosa was noted in 7. This ulceration may be so extensive as to form a crater in the tumour, so that on superficial examination it resembles a diverticulum. This is the type which frequently perforates, as in the case reported by Cattell and Woodbridge,[3] and in the case reported here. The overlying serosa shows evidence of inflammation, with plastic exudate, and adhesions to the omentum and surrounding bowel. There is, however, no invasion of surrounding structures by tumour tissue.

Microscopically, these tumours present the usual features of leiomyosarcomata elsewhere. Smooth muscle predominates, connective-tissue stroma varies from scant to moderate in amount, forming some whorls. There is an infiltration of the growth with plasma cells, lymphocytes, occasional eosinophiles, and multinucleated giant cells. The tumour cells are spindle-shaped, slender, interwoven, shorter and thicker than normal. Suitable stains such as Mallory's, Van Gieson's, Weigert's, and phospho-tungstic acid-hæmatoxylin are necessary to demonstrate the myogenous and non-collagenous character of these cells. Foote-Bielschowsky's stain sometimes shows a fine reticulum around individual cells. The cytoplasm is acidophilic and less than in normal smooth muscle cells. The nuclei are larger, pleomorphic, rod-shaped with rounded ends, rich in chromatin, which is evently distributed; mitoses are usually abundant. These nuclei are numerous and exhibit a tendency to palisade formation.

Microscopically, the differential diagnosis between spindle-cell sarcoma, cellular fibroma and malignant leiomyosarcoma may be made upon the following criteria: (1) Fibrous tissue may exhibit abnormal new growth, but fibroblasts predominate here, forming a sarcoma. (2) Muscle cells are sharp in outline with definitely pointed extremities, while fibroblasts have ends which break up into an arborization of fine tendrils. (3) The nuclei of muscle cells are more numerous, have rounded ends and lie within the cell bodies; nuclei of fibroblasts, on the other hand, are less numerous, spindle-shaped, shorter and lie on the surface of the cell body. (4) Muscle cells show none of the many striations characteristic of fibrous tissue.

Leiomyosarcomata, like the majority of malignant tumours, metastasize to other parts of the body. In the 21 cases previously reported, 5 showed metastases. Gohn and Hintz[8] report a case in which the primary growth in the ileum caused an intussusception, and metastases were found in the abdominal wall, lungs, chest wall, pancreas, both suprarenals, capsules of both kidneys, mucosa of the stomach and duodenum, and a thrombus in the 7th intercostal vein; none in the colon, liver, prostate or neighbouring lymph glands, which is unusual in malignancy in the gastro-intestinal tract. In other cases metastases have been reported in the thyroid, liver, ovary, appendix, mesentery, bones, regional omentum, peritoneum, lymph nodes, subcutaneous tissue. In spite of the widespread sites of metastases noted, these tumours are slow-growing and metastasize late; Demel[5] reports a case in which a nodule was removed from the liver and at autopsy 2 years later the primary was found in the jejunum.

Recurrences following removal are not common, but a few cases have been reported with recurrences at the site. Klopp and Crawford[12] report a recurrence at the site of origin 13 years after removal of the primary tumour. A review of the clinical features reveals a few facts which may be of help in the early diagnosis of the condition, which is most desirable in view of the excellent results obtained by surgical removal. In the 21 cases reported since 1875 there have been 6 correct preoperative diagnoses. Men are more commonly affected than women, in one series of 19 cases 13 were in men. The incidence is greatest in the age-group from 30 to 50 years.

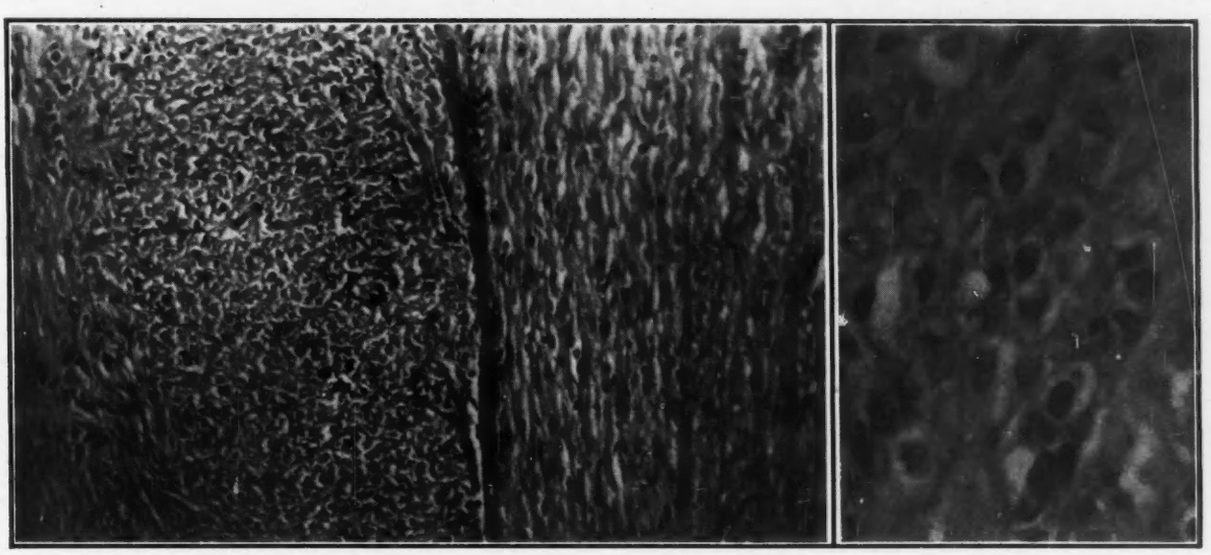


Fig. 1 Fig. 2

Fig. 1.—Low power showing tumour structure. (Courtesy of Dr. Allen Graham). **Fig. 2.**—High power showing section of tumour tissue. (Courtesy of Dr. Allen Graham).

These patients are usually not acutely ill when first seen. The presenting manifestations are usually referable to one or both of two main groups; those due to anæmia from intestinal hæmorrhage; those due to interruption of intestinal continuity. Frequently, however, an abdominal mass is the only sign.

Those due to intestinal bleeding, from an ulcerating mucosa, which is a cardinal feature are: anæmia, which may only be slight, but may be so severe as to cause sudden syncope with tarry stools. Obscure weakness, and loss

of weight are common, but although cachexia does occur it is not common.

Those due to disturbances of intestinal continuity are the result of obstruction to the lumen, as occurs in the sub-mucous type, giving rise to delayed emptying of stomach, duodenal stasis, gaseous indigestion with belching and regurgitation of bile. Adhesions to surrounding organs, as occur in the sub-serous type, also give rise to a low-grade obstruction with much the same train of symptoms, including cramp-like abdominal pains. Pain is usually late in appearing and may be dull and aching in character rather than cramp-like, if there is not much obstruction. Backache may also be complained of. Acute obstruction can and does occur, presenting the usual features that it does in other conditions. Nausea and vomiting are variable features, occurring rather infrequently. Torsion of the tumour may occur and produce symptoms of acute obstruction.

The complications which may occur are: (1) Ulceration with hæmorrhage is the most common; occult blood in the stools is frequently found and melæna occasionally. This accounts for the anæmia frequently found. (2) Obstruction is often present; it may be either acute or chronic, occurs in the sub-mucous type due to obstruction of lumen, and in the sub-serous type due to adhesions to surrounding structures, causing a kinking of the involved bowel. (3) Intussusception has been reported in the sub-mucous type with the tumour acting as the apex of the intussusceptum. (4) Perforation of the bowel has been reported in several cases, as in the one reported here, due to ulceration of the tumour. (5) Torsion of the bowel as a result of adhesions to surrounding structures has been advanced as an explanation of the symptoms found in some of the cases.

The diagnosis of this condition is not easy. There have been but 6 correct preoperative diagnoses in the 22 cases reported. A history of crampy abdominal pain, gaseous indigestion, loss of weight, occasional melæna should lead one to think of the condition. Physical examination may or may not reveal an abdominal mass or tenderness; cachexia and anæmia may or may not be noted; x-ray may or may not be of help; usually it is negative; in some cases it has been of help, duodenal stasis and delayed emptying of stomach being the most frequent findings. Laboratory research does not reveal any characteristic findings; the urine shows no abnormal changes; examination of the blood reveals varying degrees of secondary anæmia, the leucocyte count may or may not be elevated, depending on the degree of ulceration and secondary infection.

Cattell[3] makes the following statement with regard to this condition; "patients of cancer age with duodenal stasis proved by x-ray, occult blood in the stools, should have an exploratory laparotomy. In cases of unexplained melæna consider sarcoma."

CASE 1

R.L., a 42-year old coloured male was first seen in the out-patient department of the Cleveland City Hospital on September 10, 1940, and subsequently on September 11, 17, 19, and 26. He complained of having passed dark red blood per rectum several times a few days previous to admission. Physical examination revealed no abnormalities except small clots of blood high in the rectum. Sigmoidoscopic examination revealed several benign polyps about 8 inches from the anal orifice. Biopsy revealed mucosal polyps showing chronic inflammation. The polyps were cauterized with a Bovie unit.

On January 22, 1941, the patient came into the emergency room of St. Vincent's Charity Hospital complaining of severe pain in his right side which had come on suddenly two hours previously. The pain was mainly on the right side, continuous in character, radiating to the back and right shoulder. He vomited once previous to admission, and was still nauseated. He gave a history of attacks of indigestion over the past 15 years, which had been relieved by soda. He also gave a history of tarry stools in the past year. He had no complaints referable to any other system. Physical examination was negative except for the following findings:

The respiratory movements of the abdomen were absent; there was diffuse abdominal tenderness, most marked on the right side, particularly in the right upper quadrant. The entire right side was spastic, with board-like rigidity in the right upper quadrant. Rectal examination revealed slight right-sided tenderness. Temperature was 36.5° C., respirations 18, pulse 72, blood pressure 130/78, white blood cells 17,000; urine was negative.

A diagnosis of perforated peptic ulcer was made, the patient was admitted to the service of Dr. E. P. Neary and taken to the operating room where the abdomen was opened by a high right rectus incision. As soon as the peritoneum was opened thick bile stained fluid with flakes of lymph in it escaped. Exploration revealed what appeared to be a perforated diverticulum of the jejunum about 6 inches distal to the ligament of Treitz. This lesion was removed by means of a V-shaped incision. The bowel being sutured by a double row of sutures. Abdomen was closed without drainage.

The postoperative course was rather stormy, the patient developed a bronchopneumonia and died on the 8th postoperative day.

The main autopsy findings were generalized peritonitis, bilateral bronchopneumonia, with chronic duodenal ulcer, and cortical adenoma of the right adrenal.

Pathological examination of the surgical specimen revealed a diverticulum-like structure 2.5 cm. in diameter and 2.2 cm. in length; with a perforation 5 mm. in diameter on one side. The structure was firm and resilient. Section revealed it to be a nearly solid tumour with a small central cavity communicating with the lumen of the intestine. The tumour tissue was pale grey, glistening and resilient. Microscopically, it was found to be composed of long spindle cells with long oval nuclei, resembling smooth muscle cells, arranged in bundles with some whorl formation, and in some areas a suggestion of palisading of the nuclei. The growth

occupied the outer wall of the small bowel replacing the muscularis and extending up to the muscularis. In several areas the overlying mucosa was ulcerated. The portions of the tumour most remote from the mucosal surface of intestine showed extensive degeneration and leucocytic infiltration. Pathological diagnosis: leiomyosarcoma of jejunum.

CASE 2

Mr. C.E., was admitted to St. Vincent's Charity Hospital, service of Dr. C. E. Kuhlman, complaining of pain in the stomach, on December 25, 1941. Apart from an appendectomy in 1923 (no pathological report) there was little of note in his history.

Present illness began with an acute attack one week before admission following palpation of the abdomen by a physician but there had been intermittent attacks of pain at this site previous to the appendectomy in 1923. The present attack of pain localized to right lower quadrant came on suddenly and was so severe that it caused him to faint. Since that time he has had constant pain in right lower quadrant varying in intensity, and does not radiate. The pain bears no relation to time or type of food eaten. He has noted no changes in bowel habits, or in type of stool. No tarry stools noted, but dark blood was seen in stools following a laxative. No nausea or vomiting, but occasionally has had dull epigastric pain, with excessive amounts of gas. No other symptoms.

Physical examination revealed a white male appearing about the stated age of 56 years, well nourished and well developed, lying quietly in bed and not appearing acutely ill. General physical examination revealed no abnormalities. Examination of the abdomen showed nothing but tenderness in the epigastrium, right upper quadrant, and most marked in the right lower quadrant.

Blood pressure was 116/66; temperature 38.4° C.; pulse 100; white blood cell count 15,400. Urine was essentially negative.

A barium enema showed no evidence of any lesion in the colon, or in a short segment of the terminal ileum visualized at the same time. A fluoroscopic examination of the chest was negative. X-ray of œsophagus, stomach and duodenum following a barium meal was negative except for some exaggeration and distortion of the pre-pyloric mucous membrane. There was no delay in the passage of the opaque media through the small intestine and it was normal in appearance. Intravenous cholecystographic examination showed a functioning gall bladder with one stone 4 or 5 cm. in diameter.

On December 31, 1941, an exploratory laparotomy was done and a tumour mass was found in the terminal ileum 30 cm. from the ileo-cæcal junction. It appeared to be a hæmatoma of the intestinal wall. The lumen of the ileum was not obstructed. A resection of the mass and adjacent bowel with a side to side anastomosis was then performed using a double layer of sutures. Four grm. of sulfanilamide powder were placed in this region and the abdomen closed in layers without drainage. Postoperative collapse developed, with peritonitis and death occurred within eleven days. Autopsy was not obtained.

Pathological report.—Gross: The specimen consists of a portion of ileum measuring 7 cm. in length. At the anti-mesenteric border of this is a cystic mass 6 cm. in diameter which is firmly adherent to the bowel but no communication can be seen from the lumen of the ileum to this mass. On section the mass is found to contain organizing blood clot. The portion of the bowel to which it is attached has a thickened wall, measuring about 0.8 cm. in thickness. It is very soft and friable. The wall of the cystic mass is 3 cm. in thickness and appears to be made up of fibrous tissue.

Histological: The mass is of neoplastic character and presents a wall which is composed in part of compact, partially hyalinized, fibrillar tissue and in part of well preserved, actively growing, sarcomatous cells of spindle shape. The cells are arranged in a rather characteristic peculiar radiating fashion, many being grouped around vascular channels which likewise are of neoplastic type. The cells possess large, oblong, or oval nuclei and are rather broad, although the cytoplasm is made out with difficulty in many areas. The central portion of the mass apparently has undergone necrosis and recent hæmorrhage is noted on the inner surface. There does not appear to be extension through the wall proper. There is moderate variation in size, shape and staining qualities of the nuclei. The mass apparently arises from the muscular coat, and by special stain the tissue appears to be of smooth muscular type. The neoplasm is regarded as of moderate malignancy. Pathological diagnosis: Leiomyosarcoma of ileum.

COMMENT

This case provides considerable food for thought. First, one wonders if the symptoms for which the appendectomy was performed in 1923 could not have been due to this tumour which was probably present at this time? Secondly, was the acute onset of the last attack due to abdominal palpation causing hæmorrhage in an already degenerated tumour, or was it just coincidental, as hæmorrhagic degeneration is rather common in this type of tumour. Thirdly, were all the gastro-intestinal symptoms due to the small bowel lesion or were they in part due to the cholelithiasis, or was this a so-called "silent stone".

I wish to express my appreciation to those who have made this paper possible; to Dr. E. P. Neary for permission to operate on and treat the case and for assistance in preparation of the paper, to Dr. Allen Graham for the photomicrographs, to Miss Rogers and Miss Brennan for the help in accumulation of the data, and to Dr. C. Kuhlman for the permission to publish the case report on his case.

REFERENCES

1. ANDERSON, D. H. AND DOOB, E. F.: *Arch. Path.*, 1933, **16**: 795.
2. BRINK, J. R. AND LAING, G. H.: from Trans. Chicago Path. Soc., as published in *Arch. Path.*, 1933, **16**: 316.
3. CATTELL, R. B. AND WOODBRIDGE, P. D.: *Surg. Clin. N.A.*, 1931, **11**: 363.
4. COHNHEIM: quoted by J. McFarland, *Am. J. Cancer*, 1935, **25**: 530.
5. DEMEL: *Virchow's Arch. of Path. Anat.*, 1928, **269**: 160, quoted by J. Brink and G. H. Laing in *Arch. Path.*, 1933, **15**: 316.
6. DIXON, C. F. AND STEWART, J. A.: *Surg., Gyn. & Obst.*, 1933, **56**: 801.
7. EWING, J.: Neoplastic Disease, 2nd ed., W. B. Saunders Co., Philadelphia, 1922; quoted by J. McFarland, *Am. J. Cancer*, 1935, **25**: 530.
8. GHON AND HINTZ: *Beitr. z. path. Anat.*, 1909, **45**: 89; as quoted by J. Wolfer, *Surg., Gyn. & Obst.*, 1928, **47**: 643.
9. GOLDSMITH, R.: *Ann. Surg.*, 1936, **104**: 148.
10. JONES, R. DUV.: *Virginia Med. Monthly*, 1935, **62**: 150.
11. JOYCE, T. M.: *Ann. Surg.*, 1934, **100**: 949.
12. KLOPP, E. J. AND CRAWFORD, B. L.: *Ann. Surg.*, 1935, **101**: 726.
13. MCDERMOTT, J. C.: *Canad. M. Ass. J.*, 1936, **35**: 22.
14. MCFARLAND, J.: *Am. J. Cancer*, 1935, **25**: 530.
15. MELNICK, P. J.: *Am. J. Cancer*, 1932, **16**: 890.
16. NYGAARD, K. K. AND WALTERS, W.: *Arch. Surg.*, 1937, **35**: 1159.
17. OBERNDORFER, quoted by K. K. Nygaard and W. Walters: *Arch. Surg.*, 1937, **35**: 1159.
18. RAIFORD, T. S.: *Arch. Surg.*, 1932, **25**: 112.
19. SKINNER, I. C. AND WALTERS, W.: *Proc. Staff Meet. Mayo Clinic*, 1939, **14**: 102.
20. SPEESE, J.: *Ann. Surg.*, 1914, **59**: 727.
21. WOLFER, J. A.: *Surg., Gyn. & Obst.*, 1928, **47**: 643.
22. ZEIT, quoted by J. A. Wolfer: *Surg., Gyn. & Obst.*, 1928, **47**: 643; (personal communication to the author.)

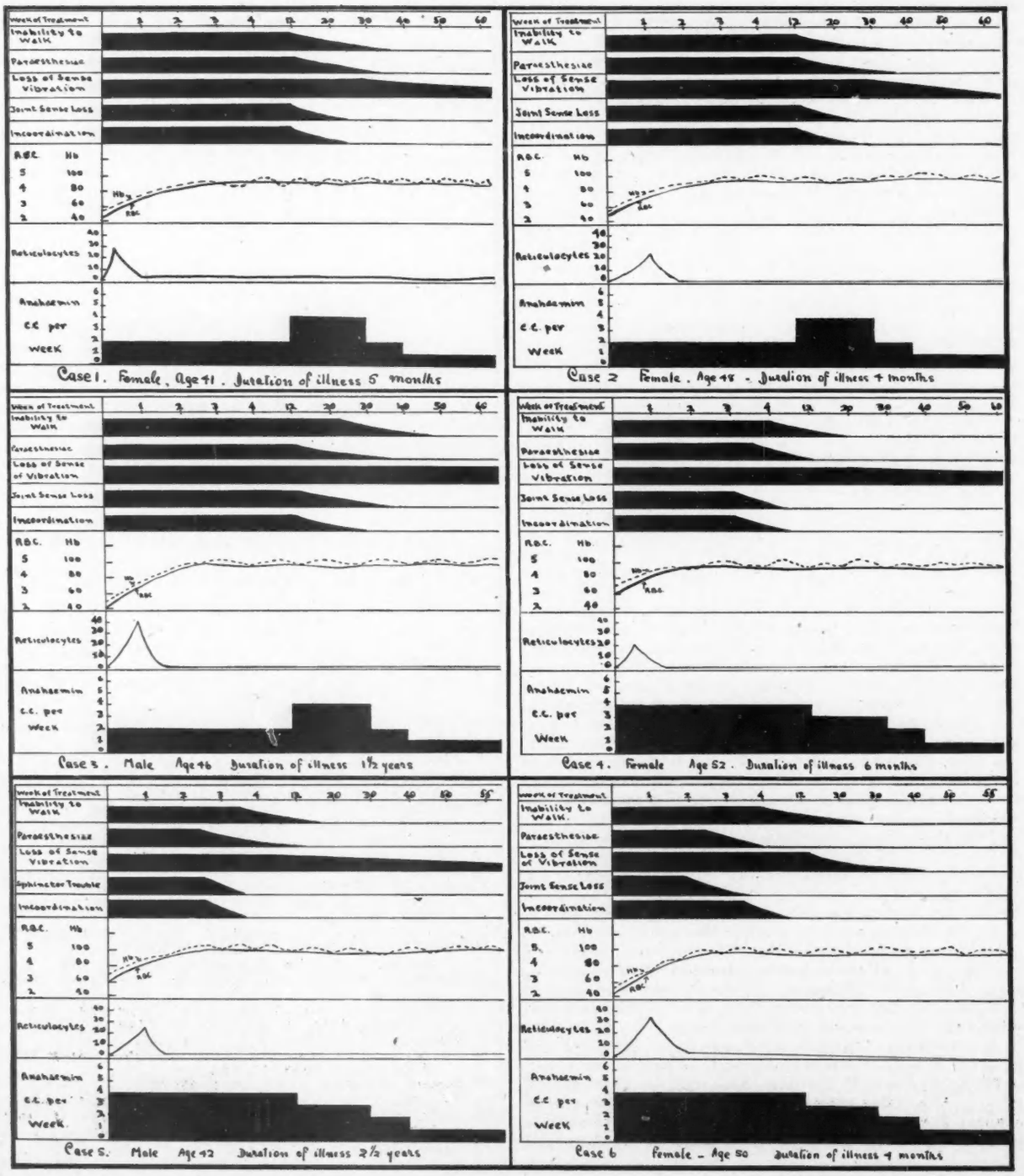
THE DOSAGE OF LIVER EXTRACT IN THE TREATMENT OF CORD LESIONS ASSOCIATED WITH PERNICIOUS ANÆMIA*

By R. Gottlieb, M.D., C.M., M.Sc.

Montreal

NOTHING gives the clinician more difficulty in the treatment of pernicious anæmia than cord lesions associated with it. One frequently hears questions like these: can cord lesions be cured, or only improved? Is liver extract effective in the therapy of cord lesions associated with pernicious anæmia? The answers to these questions are often contradictory, and if one analyzes the results obtained by different clinicians one can understand the variations in the results. The main reason for failure in the therapy is inadequate dosage of liver extract. The purpose of this paper is to stress the necessity for larger doses of liver extract whenever cord lesions are associated with per-

* From the Department of Hæmatology, Jewish General Hospital, Montreal.



nicious anæmia. Six cases of pernicious anæmia with subacute combined degeneration of the spinal cord are reported here, to demonstrate the necessity for larger doses of liver extract in these cases. Every case was first definitely diagnosed by complete investigation, and other possibilities such as malignant growth, were excluded before treatment was started. A purified and concentrated liver extract (Anahæmin, British Drug Houses Ltd.) was used intramuscularly in all cases. At first, only small doses were used and although a prompt reticulocyte response and subsequent rise in erythrocytes and hæmoglobin were noted, little or no improvement occurred in the neurological signs and symptoms. The dose was then increased, and the effect on the cord lesions could soon be noted.

For the sake of space the cases are presented in tabular form, and only the essential features noted.

DISCUSSION

In cases 1, 2 and 3 one can see the rapid improvement of the anæmia with small doses of concentrated liver extract, but no improvement of the neurological signs and symptoms until the dose was markedly increased. In cases 4, 5 and 6 the treatment was started with much larger doses, and one can see how much sooner the neurological signs and symptoms improved. However, no better results were obtained with the larger dose so far as the anæmia was concerned. The duration of the illness prior to the therapy seems to be important. Cases 3 and 5 show less effect after therapy than do the other four cases. In both cases the onset of the illness was well over one year prior to the start of therapy, while the other four cases were of much shorter duration.

It seems from the results of these cases that concentrated liver extract has a definitely beneficial effect on signs and symptoms due to cord changes occurring in the course of pernicious anæmia. The degree of recovery will naturally depend upon the extent of damage done to the nervous tissue. One cannot expect recovery where nervous tissue has been irreparably damaged. The earlier during the course of the illness therapy is started, the better results one can expect. It also seems apparent that much larger doses of liver extract are required in the treatment of cord changes than in cases suffering from anæmia alone.

SUMMARY

1. The use of concentrated liver extract has a definitely beneficial effect on cord lesions associated with pernicious anæmia.

2. The dose of liver extract necessary in such cases, is considerably larger than is required for the treatment of the anæmia alone.

3. Recovery or improvement will depend upon the degree of permanent damage done to the nervous system.

RÉSUMÉ

La dose d'extrait hépatique qu'il faut utiliser dans les syndrômes neuro-anémiques doit être beaucoup plus élevée que s'il s'agissait de traiter la seule anémie. Le dosage sera réglé sur la gravité du tableau clinique et la diminution des doses s'inspirera des améliorations observées. JEAN SAUCIER

SOME ASPECTS OF INDUSTRIAL MEDICINE

By R. A. Kennedy, M.D.

Toronto

THE duties of an industrial medical officer have been defined by authoritative bodies as: care of accidents arising in the works; examination of employees and grading them as suitable for different classes of work; control of industrial diseases; general hygiene of employees, which includes everything from hours and conditions of work to the social education of the workers.

This is a counsel of perfection and takes into consideration neither the fact that nearly all factories are medically understaffed, nor the responsibilities (and susceptibilities) of other managerial groups.

In practice it is found that the work of an industrial medical officer is a compromise and the success of the compromise depends largely on his own efforts. His position is peculiar in that he has no disciplinary standing; he is essentially an adviser. The weakness of this position is that his usefulness depends so largely on his personality and on how he puts over his ideas; its strength lies in the latitude it gives him to go everywhere, see everything, talk to everybody, and listen to anyone who wants to talk to him. With these facilities he ought to be able to exercise very considerable influence; but let a whisper get about the shops that the doctor takes sides in any management versus labour

dispute, that he puts the needs of production before the necessities of the individual, that he is not quite sound in the matter of professional secrecy, and he will be regarded with distrust: or if the managerial staff get the idea that he is too political, too inclined to interfere or to talk out of turn, his usefulness is immensely impaired.

The doctor has to be a very master of tact, knowing when to keep his mouth shut, when to persuade, when to bully, when to call in the aid of high authority.

Of all the people the doctor has to work with two groups are especially difficult; the foremen in the factory, and the medical men outside.

The foremen are the backbone of any plant. They are excellent men, technical experts as well as good judges of human nature, but they are very touchy. They regard their workers as their children, know them inside out, can give endless information about them and will do anything for them if convinced of its usefulness. Put a problem up to them in the right way and at the right time, interest them, get their co-operation and they are wonderful allies. But if they misunderstand the doctor and think he is an interfering idiot, months and months of patient wooing will be necessary before they again listen willingly to his medical ideas.

The position of the general practitioner in relation to the industrial medical officer is readily understood. Naturally, he resents his patients getting free treatment at the factory; he considers he is being deprived of work and fees that are rightly his. In these circumstances he is of course unwilling to co-operate either by giving information for which he may be asked or by making suggestions about individual cases.

As a fact there is no reason at all why medical cases should be treated in the works, if one excepts the occasional handing out of an aspirin or soda tablet. When an employee is found who is in need of medical treatment he should be referred to his own doctor, a letter being sent with him if there are any special points to which the industrial medical officer wished to call attention. Almost all cases of injury, too, can, after preliminary treatment in the works, be left to the patient's doctor. The only ones which can properly be treated from first to last in the factory dispensary are minor cases which involve no lost time, and which require only a daily dressing.

There are one or two obvious exceptions pertaining to factories situated in out-of-the-way spots or in places where the civil medical service is overtaxed, but as a rule the industrial man should seek to put work in the way of his general practitioner colleague rather than do anything to alienate him. The expenditure of a little time and trouble will go a long way to ensure cordial relations within the profession to the clear benefit of the patient, the private doctor, and the medical officer.

Assuming, as is likely enough to be the case in these days of shortage, that there is only one doctor for a staff of anything up to five thousand workers, it will be impossible for him to do all the work mentioned in the opening paragraph of this paper. It may be that he will find his employers expect him to do a great deal less than that — management is not yet fully educated to the advantages of having a doctor on the staff—in which event he may have difficulty in widening the scope of his work to include all the things he wants to do.

My own opinion is that, in order of importance, the work of an industrial medical officer is the general hygiene of the workers, the grading of new employees, the prevention of industrial diseases and accidents, the treatment of accidents. Unfortunately, many employers think the first, and often the sole, duty of a works' medical officer is to attend accidents occurring in the plant.

Lost time as a result of accidents is a very small part of total lost time, but because accident loss is so obvious and because it is the peg on which many official investigations are hung, it ranks high in the mind of management. Treatment given in a factory hospital seldom shortens the time lost as a result of the accident. The value of the first-aid station is to be measured by the confidence inspired in the workers, by the pain saved them, and by the skilled decision given by the doctor or nurse on the correct disposal of the injured person.

An injured workman's own tendency is to return to his work as soon as his wound is dressed. He wants neither to slow production nor to lose his money; but the experienced attendant will evaluate the local and general condition of the patient, the type of work he does, and the surroundings in which he works before deciding whether to return the man to duty, to rest him for a time, or to send him out for further investigation and treatment.

To take a simple example; an injured finger of a multiple drill operator may not be incapacitating, but if it necessitates a bulky dressing the man is not only rendered clumsy and spoilful, but the dressing may be an active hazard by its liability to be caught up in one of the drills, with consequent further damage to the finger or whole hand; therefore that employee should not return to his work until the size of the dressing can be safely reduced. On the other hand, a particularly bloody accident may upset a whole department for hours, so if the injured person can be quickly returned to his bench, bandaged, but smiling, it may well be worth risking something in his case for the sake of the general morale, but the risk needs nice assessment.

In the matter of accidents one of the most important duties of the medical station should be the detailed recording and subsequent analysis of all accidents, even the most minor.

The amount of information required about any accident will vary somewhat, but it is wise to get reasonably complete details of every case. A suitable routine is to make out a card for every incident. On this is recorded, usually by punch code, such things as sex, age and experience of operator; department, shift, time and date of accident; part wounded; type and causation of injury; probable and actual duration of disability. (This last by the way is a salutary check on one's prognostic skill.) By means of these cards any particular group or combination can quickly be separated for study.

To the average member of a safety committee accidents are only paper reports. The doctor is the one who sees almost all the accidents that occur, he is the only person who can really make comparisons between similar accidents in different departments or judge the effect of varying conditions, and—this I believe to be very important—he is the only person who gets an idea of how many minor mishaps only just miss being major catastrophes. With this detailed and lively knowledge the doctor can make himself a most useful and powerful ally of the safety committee.

It is not the object of this article to go into the treatment of accidents, but I would stress as strongly as possible the trouble which is caused when workers are allowed to treat themselves from the first-aid boxes. If they do this the medical department loses a lot of valuable data and there will be the inevitable crop of claims about unrecorded injuries.

Every accident, however slight, must be seen at the surgery. The first-aid boxes need contain nothing except sterile dressings with which to cover a wound while it is en route to the doctor and a tourniquet for the rare occasions when it is needed. Finally, the doctor must insist that no person who has been off duty as a result of an accident may resume work before he himself has checked the man as fit. The patient may have been released by his own doctor or by a hospital but these authorities know little or nothing of the nature of his occupation. The final decision must rest with the works' medical officer and if he finds the man unfit for his proper job he must try and make arrangements for the patient to go on to other, lighter work until he is fully recovered.

It is usual to group industrial diseases with industrial accidents but the doctor's approach to the two problems is essentially different. Accidents are obvious, their cause readily determined and their prevention a matter of mechanical ingenuity and the education of the worker. Industrial diseases are insidious and while the cause and prevention of most is well understood, the treatment of nearly all is unsatisfactory. And new dangers are constantly arising as new processes are introduced. Certainly, the doctor should know as much as possible about all the processes in use in his plant, especially the hazardous ones, but I deplore the increasing tendency to make him responsible for the safety of their operation. Technical experts, acting under the management and directed by Government authorities, should have that responsibility. The doctor can do something to help by watching for possible weaknesses in the application of the safety rules, but his true province is to detect at the earliest possible moment the signs which show that safety has broken down and disease started. No safety practices are impregnable and constant watchfulness will not only reveal flaws in the code but will give the patient the best and quickest chance of recovery.

Serious industrial disease is a comparative rarity in ordinary industrial practice. The problems which constantly beset the medical officer are the widespread but minor disorders, of which industrial dermatitis is easily first, both in incidence and difficulty. It is no great exaggeration, and probably quite true, to say

that all new workers in metal finishing shops, most new workers in machine shops and very many new workers who handle apparently innocuous metal develop in the first month of their employment some degree of dermatitis. The attacks vary from very violent to very mild and the worker may be absolutely incapacitated, able to do only selected work, or so little affected that he can continue his employment without difficulty.

Most people acquire an immunity fairly quickly but some relapse as soon as they return to contact with the irritating agent. With a little experience the doctor ought to be able to give a reliable prognosis in each case and the personnel department will be extremely grateful if he can say with some certainty which employees are worth persevering with and which will never be able to work in "dermatitis shops". He can, too, amuse himself to his heart's content experimenting with protective creams and lotions and with the innumerable "cures" which have been advocated, for prevention and treatment are alike unsatisfactory.

As has been said, accidents and industrial diseases account for only a small fraction of total lost time. The balance is made up of holidays—which are fortunately unavoidable—and non-industrial sickness. It is here that the doctor has his widest field. Endless arguments take place about the degree to which working conditions affect the general health of a factory population and whether the most strenuous efforts of a management to provide the best possible surroundings will appreciably lower the sickness rate. At one end of the examples adduced are the notorious "sweat shops" where working conditions are the worst possible and wages minimal; at the other end are organizations which look after the entire life of the workers, providing not only ideal factories but houses, shops, schools and hospitals for the employee and his family. It is almost unbelievable, but nevertheless true, that the sickness lost time at these two extremes is practically identical. The cynical explanation usually advanced to explain this is that in the one case the worker is permanently sick and does not realize he is ill until he is at death's door; while in the other the slightest ache or pain means at least two days off duty while a cohort of doctors applies every known test to exclude serious disease! The real explanation no doubt is that the bad employer discharges the sick worker as soon as possible so that his statistics are hopelessly vitiated.

In the last ten years or so a great many firms have established very efficient medical departments in their works and the experience of these companies has been that their sick absence rate has been cut by about one-half: one firm actually claims a 75% reduction.

Before going into the methods whereby these improvements are attained it may be interesting to record certain instances which show not only the modern attitude of management but also the scope of the industrial medical officer's work.

Valuable comparisons can be made between firms which have up-to-date buildings, cafeterias, organized sports groups and so on, and firms which go even further by supplying for their workers such things as sick benefits and sponsored ophthalmic and dental clinics.

It is found in this case, as in the comparison between the very good and the very bad employer, that the more a firm does for its workers the higher is its sickness rate, especially the short term (one and two-day) absenteeism. It is claimed however that the better firm gets more loyalty and more production from its employees than does the not quite so good corporation. It is very difficult to produce figures in support of this claim but two facts are worth mentioning. The first is that I know of no firm which having instituted a plan for the betterment of its workers has had to withdraw it because it was abused. The second is an instance of the increased loyalty that has been mentioned.

A firm I was connected with paid full wages for every day of sickness absence if the employee was off four days or more. If the absence was of one, two or three days' duration the employee got nothing; if however he was absent the fourth day he got four days' pay. One would not have been surprised to find that three-day absences were extremely rare — the temptation to take the extra day off and so get four days' pay must have been great, but in fact four (and five and six) day absences were noticeably lower in that factory than in a sister concern where sick benefits did not exist. Even more striking was the difference between the two factories in Saturday returns. It is usually a very safe bet that if a man is off sick on Wednesday, Thursday and Friday he will not return to work until Monday; but in this factory as many returned to work on Saturday as on any other day. The management considered that

the Saturdays they saved almost paid for the whole benefit scheme.

On one occasion I made a comparison between sickness rates and distance travelled to work. The supposition was that people who had long and tiring journeys and who had to hang about for buses and street cars would have a high illness rate. A detailed analysis of some four thousand workers was made; where they lived, how they travelled, how many changes they had to make, time taken, and so on. The investigation showed that the original supposition was wrong; the people who had the longest and most difficult routes were well within the average for sick absence while those who drove to work in automobiles had the highest rate. I never could figure out a reasonable explanation for that. The inquiry was not wasted, however, because with the mass of information we had about awkward journeys we were able to approach the transport companies and get them to put on special runs for the benefit of our workers.

Another investigation arose from the idea that girls who lived at home were in better health than girls who had to pay full rent for a room and buy and cook their own food; the supposition being that the latter had insufficient money and time to get proper meals. We did in fact find that girls on their own had a worse sickness record than the other category. For a time it seemed impossible for the management to do anything to improve this state of affairs; it would have caused endless trouble if girls living at home were paid less than the others or if any other differentiation was made, but in the end something was accomplished by giving quietly arranged preferential treatment in the cafeteria to the less favoured group and by establishing company inspected lodgings where girls would get the utmost value for their money.

These examples serve to show the sort of extra-mural problems which present themselves to an industrial medical officer, but most of his work is concerned with conditions arising within the factory. From his records the doctor is able to detect all sorts of problems: why is the sickness rate in that department higher than the factory average? Why is this group of workers subject to a high seasonal incidence? Why has the sickness record suddenly deteriorated in such and such a shop? Once one knows that these differences exist, one has some ideas where to start looking for the trouble, but without carefully compiled records, one is hopelessly handicapped. For example, one may find that paint sprayers are particularly liable to colds, probably because their work demands that they shall stand in the strong draught of the ventilating fans.

Or maybe the wire winders show a sudden incidence of many cases of "nervous debility" because new machines have been installed which demand that each girl shall watch a dozen bobbins instead of the previous eight. These problems are easy to state but difficult to solve, as it is often a hard job to reconcile the needs of production with the well-being of the workers.

A word about this "nervous debility" may not be out of place. It can appear in protean forms and is one of the bugbears of industrial medicine. It commonly arises from too monotonous occupation, insufficient relaxation, eye strain, or exposure to certain degrees of noise. It is responsible for more sickness absence than any one other illness, and it can never be eradicated by casual investigation or haphazard treatment; its defeat demands the most strenuous efforts of the doctor as well as the wholehearted co-operation of the management.

We can now form some conception of the medical, as opposed to the accident, duties of the industrial medical officer. He should examine all new employees and grade them as suitable for work in this or that department. In peace time employers are chary of taking on anyone who is not quite fit, but when labour is scarce the doctor can be of great help by suggesting what work is best suited to the under-par applicant. This grading of new employees will save a good deal of unnecessary labour "turn over", besides improving production by putting the right man in the right job. If possible the medical officer should see everyone who returns to work after a period of sickness and make sure that he is really fit. He must keep a careful watch on individual sickness records, and have interviews with all "repeaters", to see if anything can be done to improve their condition.

Ideally, all employees should be re-examined at stated intervals, yearly if possible, but in a firm big enough to employ a doctor this is likely to be a prodigious labour if done thoroughly. In practice he will probably have to be content with checking those who have been sick, those who come to him for advice, those referred to him by the foreman as not looking up to the mark, and those in the known dangerous occu-

pations. Finally, he must keep track of the trends of illness in his plant and think out ways of improving conditions which seem to be a factor in his problems.

It is apparent now how wide a field is open to the industrial medical officer and how varied are his contacts. It will readily be appreciated that the doctor who does not have the run of the works and who is not trusted by both management and workers has little chance of doing a good job.

His greatest assets are a wide general knowledge, much common sense, and endless tact. The last is perhaps more important in industrial medicine than in any other branch of professional work, largely because the factory doctor is bound to be a reformer and the tactless reformer will accomplish less than nothing.

RÉSUMÉ

Le travail d'un médecin d'entreprise industrielle n'est pas simple. Ce médecin est essentiellement un aviseur, d'où son influence s'il est habile. Il devra faire face au gérant d'industrie et aux médecins de l'extérieur; gagner la confiance des premiers et s'entendre avec les seconds pour les soins à donner aux employés. Les devoirs de tels médecins dépassent le traitement des accidents; ils doivent aussi organiser la prophylaxie des maladies, éviter les pertes de temps au cas d'accidents ou de maladies et classer et analyser tous les accidents. L'expérience montre qu'il ne faut rien laisser au hasard, mais traiter tous les accidents, si petits soient-ils. Le retour au travail sera permis quand le médecin de l'usine le jugera. Les maladies industrielles seront étudiées et déclarées telles après de minutieuses observations. L'amélioration des conditions hygiéniques du travail a toujours amélioré le rendement. L'étude des dossiers améliore des sections entières d'usines. La surveillance des nouveaux employés permet de mieux les répartir. L'examen attentif des malades récidivistes éliminera souvent la récidive. Pour réussir, le médecin d'usine devra avoir la confiance de l'employeur et de l'employé. JEAN SAUCIER

ACCESSORY SINUS DISEASE IN GENERAL PRACTICE*

By Perry G. Goldsmith, C.B.E., F.R.C.S.(C)

Toronto

THE purpose of this communication is to clarify the unsettled feeling in your minds on the question of inflammation of the accessory nasal sinuses. To do this, it will be necessary to tell you in simple language what is meant by sinus disease, how it may be recognized, and indicate the principles of sound, conservative treatment.

How often do patients come to us saying, "Doctor, have I a sinus for, if so, I do not want to have any operative treatment, because one is continuously hearing 'Once a sinus, always a sinus'." This condition of worry among patients is not alone due to the fear and anxiety people have, induced from reading newspaper articles, but from talking among themselves and finding many others who are unsatisfied with the results of treatment to their nasal sinuses. We must not forget, too, the careless, casual reference to sinus disease made by physicians themselves when discussing patients' minor discomforts. I submit this is a result of the undue importance attached to the disease itself, and its possible effects on neighbouring and distant organs. This unrest is one of the penalties of the almost religious fervour with which the subject of "focal infection" has attracted the attention of the medical profession. This vehement hysteria has found a "happy hunting ground" among those with excessive nasal and postnasal secretion.

I am not unmindful, too, that the medical profession itself, by injudicious, excessive, and even meddlesome surgery, must assume a share of the unsatisfactory situation in this connection. The excessive therapeutic "tinkering" with the nasal mucosa, by ephedrine sprays, irritating lotions, and, especially, strong salt solution, not only pickles the delicate epithelial lining but deprives it of its normal protective covering. The middle ear and nasal sinuses resent watery solutions, and the only remedy they have is to swell up and throw out mucus to protect themselves. The irritant may be, however, excessive smoking, drinking, laziness or lack of exercise, over-eating, and living in houses where there is not sufficient moisture.

While all the nasal air cells are considered from a pathological viewpoint, those in the ethmoidal and frontal group will be briefly discussed clinically. The differential diagnosis and the conservative treatment of inflammation of the antrum will be considered fully, as infection here is so often seen in general practice.

The mucous membrane lining the nasal cavities extends upward and outward into all the nasal air spaces which we call "accessory nasal sinuses", and is covered with ciliated epithelium. The membrane is rich in blood vessels and mucus-secreting glands which are most numerous about the openings through which the various air cavities communicate with the nose.

* Read at the meeting of the Ontario Medical Association, Toronto, May 28, 1942.

While cilia blanket the mucosa of the nose like the pile of a thick carpet, they do not exist to anything like the same extent in the ethmoidal, frontal, or sphenoidal sinuses, where the lining membrane is thinner, and glands less numerous. It is only in the olfactory area and the preturbinal area that we find no ciliated epithelium. The lining of the various ostia is part of the nasal mucosa but, once within the sinus proper, the lining is much thinner, vascular channels less numerous, cilia more abundant, and glands vary greatly in number. The ostium of the maxillary antrum is a small, tubular, bony canal which is lined by a direct continuation of the nasal mucosa and its various component parts. The situation of this exit is at the highest part of the cavity, which does not permit dependent drainage such as exists in the other sinuses. It is, therefore, more readily occluded by various turgescent states of the nasal mucosa than the openings of the other cavities. Both inspiratory and expiratory air currents pass in a high curve through the nasal chambers, but only the expiratory currents enter the meatuses of the various sinuses.

It will thus be seen that the lining of the nose and accessory air cavities is like an almost continuous sheet, rich in blood vessels and mucus-secreting glands, and covered with ciliated epithelium. The secretion normally supplied exists as a very thin film over the entire surface, and is waved toward the natural opening by the continued action of the cilia themselves. "The cilia in man and mammals are always propulsive in action. The covering of the mucosa is moist, since the cilia do not act on a dry surface. The wave of motion is always toward the natural ostium. The time required to remove from the remotest part of any sinus the most active bacteria, through the ostium to the pharynx, is twenty minutes; hence, most bacteria are disposed of before they can injure their host. The sinus with its full complement of cilia can renew its coating in five to ten minutes, and the entire nasal blanket into the pharynx once every hour. The cilia beat as long as 112 hours after death. If a portion is removed from a cadaver under over-night refrigeration these cilia are again brought into activity by simply warming. They can be seen to be moving regularly and normally in a pus-filled cavity on a membrane riddled with infection and, in acute infections, regenerate in a matter of a few hours." (Proetz).

It will thus be seen that the cilia are the first line of defence, in fact the only defence, the nasal sinus has in removing the products of irritation, from whatever source it may be. An acute infection is the result of impairment of the function of ciliated epithelium, with mechanical occlusion of the ostia by œdema and discharge. The common-cold virus, the cause of most upper respiratory infections, initiates this process. With the entrance of pyogenic organisms, frank sinus infection occurs, and its clinical manifestations depend on the virulence of the organism and the ability of the cilia to maintain patency of the orifice and eliminate the products of inflammatory action. This readily takes place in a great majority of acute cases if the treatment is directed along rational grounds and meddlesome interference with the integrity of the cilia is kept within reasonable bounds.

All acute infectious head-colds, sometimes termed infectious febrilia, have as their most common complication a varying degree of inflammation of the nasal sinuses, which usually disappears *pari passu* with the subsidence of the head cold. When the nasal and sinus mucosæ are irritated, whether by metabolic, allergic, or infectious process the initial result is the same. The change is one of œdema of varying intensity. The surface of the mucosa is swollen and the network of fine connective tissue fibres is separated by a homogeneous or finely granular material forming various-sized cavities or interspaces filled with serum. With the subsidence of the process, the mucosa always returns practically to normal, but repeated attacks lead to increased thickening, thereby lessening the size of the cavity and its ostium, as well as overloading the cilia with extra work to move away the associated glandular secretions. Ultimately, the lining mucosa may be very irregular in its thickening and, in some areas, hang down by its own weight, when it is spoken of as polypoid. During an acute attack the engorgement and œdema may be so great that by pressure alone the antrum mucosa is pushed out into the nasal cavity where it forms a dependent piece of œdematous cell mucosa—a nasal polypus. It may recede into the sinus again, only to reappear during another attack, but ultimately becomes permanently outside of the affected cell. This is the reason one speaks of recurring nasal polypi as evidence of chronic sinus disease.

While the majority of cases of sinus involve-

ment are due to head colds, other causes should not be forgotten. Among the commonest are trauma, fracture of the maxillary bone, sepsis following operations within the nose, tight and prolonged packing in cases of severe epistaxis, infection following teeth extraction where the dental surgeon is curious enough to scrape out the root socket, usually of the second bicuspid, first and second molars. Structural changes within the nose, such as septal deflection, interfering with proper ventilation and drainage and intensifying the coryzal symptoms, are also factors to consider. Marked adenoid hypertrophy with frequent attacks of adenoiditis is commonly associated with antrum and ethmoidal disease in young children. Caries of the bone does not occur except in malignant neoplasia or syphilis.

In acute cases various ethmoidal cells are involved in the inflammatory process, and, if the process is extensive, the upper ethmoidal cells or the frontal ethmoidal cells also take part in the process, and it would seem obvious that the frontal sinus is more or less involved as well. In chronic cases, associated with multiple polypi in the nose it is difficult to limit the extent to which the accessory air cells are involved. They are probably all more or less involved, but it is important to remember that the ethmoidal labyrinth is the key-point from which surgery should be used. Happy is the surgeon who thinks he has solved the ethmoidal problem, but happier still is he whose patients agree with him! I approach the question of persistence of suppuration after operations on the ethmoid with much misgiving. Owing to the unusual situation, within the nose yet partially surrounded by the remaining accessory nasal air cells, and without any uniform anatomical formation, inflammatory processes associated with discharge present diagnostic and therapeutic problems which give the surgeon much cause for worry, and oftentimes lead him into difficulties in which his surgical judgment is put to the severest tests. Tilley says, "Of the ethmoidal region it may truly be said that its mazes are intricate and often far-reaching, so that when inflammation enters them its accurate localization will often tax the diagnostic acumen of the most experienced rhinologist, and a knowledge of the risks involved in its radical treatment should steady the hand of the boldest operator. He who attacks inflammatory diseases of the ethmoid without an accurate knowledge of its anatomy and pathology, must surely hold lightly the safety and sanctity of human life."

The danger in an acute frontal sinusitis is that a spreading osteomyelitis may occur, with œdema of the forehead. This œdema is a week ahead of the x-ray in interpreting the osteomyelitic process, but all frontal œdema is not necessarily osteomyelitis. Pain in the frontal sinus may be, and often is, due to an acute or subacute inflammation in the maxillary antrum. It is rarely necessary to open the frontal sinus externally for an acute inflammation. If, however, after waiting for several days, the pain persists and the sinus has to be opened, it should be through a small opening in the lower wall of the frontal sinus close to the nose. Only the most conservative operation possible should be carried out, for nothing could be more dangerous than curettage of the frontal mucosa. I again stress that there are two types of acute inflammation of the frontal sinus, one in which the disease tends to localize in the sinus, and another which tends to pass into the bony structure and spread insidiously and dangerously. Both may be associated with some œdema, both have frontal pain. The one requires to be handled in a very conservative manner, while the other demands immediate surgical measures which may be as much as removal of the whole frontal bone down to the dura.

DIAGNOSIS

The clinical history, with a careful nasal examination after thoroughly shrinking the mucosa, will in a great majority of cases permit a provisional diagnosis of sinusitis, but it is not so easy to speak definitely of each individual cavity. Much may be presumed by asking the question, "How many handkerchiefs do you use in a day?" If the answer is, say, one or two, then nothing special is gained. But if the answer tells you that, owing to the excessive secretion, the patient uses paper absorbent handkerchiefs, the assertion that the nasal discharges are profuse is strengthened. If there is no complaint of nasal discharge one should enquire as to post-nasal secretion which, if copious and foul, is strongly suggestive of an empyema of some group of air cells.

In the acute cases, a clinical diagnosis of acute sinusitis is not a difficult process, as it is a part of a severe upper respiratory infection. When to this is added profuse nasal discharge, localized pain in the forehead, and severe discomfort in the jaw or face, a provisional diagnosis of acute

sinusitis is obvious. In such cases, if there is any doubt about the matter, there are some additional measures which might be taken to make a positive finding, such as x-ray. I can see no reason or advantage in having an x-ray for an acute sinus, because the œdema of the mucosa underlying the process varies from time to time, and the x-ray merely tells you what you already know. It does, however, give you some information regarding the character and distribution of the nasal accessory sinuses and, if there should be a retained tooth root, one would know about it. In chronic cases the x-ray is very much more valuable because it helps very much not only in diagnosis but in prognosis as well. If any operative measures are to be taken on the ethmoid, frontal, or sphenoid, I think a reliable x-ray is essential to safe work. It is surprising how little is known of the refinements of technique and interpretation of the plates by many who have x-ray machines. The x-ray is a good servant but a poor master.

Transillumination is a very handy and fairly reliable method of examination in acute sinusitis. Unfortunately, its greatest benefit lies with the maxillary antrum only, for the ethmoid and sphenoid are outside its scope, while the frontal, owing to anatomical variations, does not always give even a helpful sign. Yet, on the whole, I should very much regret to be without its aid. The room in which it is used, however, should be black, the light itself should be of the focusing type, and considerable experience in its use is necessary before attempting to make any positive statements. If Brigg's transilluminator is used, in which the light comes through the floor of the orbit to the roof of the mouth, all the possibilities of inequalities between the two sides should be remembered before saying the antrum is full of pus. After all, it is the reaction of the cavity itself that largely settles the question and, if the one side of the palate fails to illuminate as well as the other, and there are clinical symptoms suggestive of excessive secretion in the nasal air cells, then lavage should be carried out. It is astonishing with what certainty those who only occasionally transilluminate their patients, diagnose sinus disease in the absence of any clinical signs whatever.

"Proof puncture" means the irrigation of the cavity in order to determine the character of its contents. It is usually done through the inferior meatus and, if the refinements of anæsthesia are known and deftness in applying the anæsthesia to the antral nasal wall is carried out, this small procedure may be used with little or no discomfort to the patient. The washing should go into a black basin where it can be more easily seen and examined. Another method of washing the antrum is through the middle meatus, that is, through the thin membrane forming the outer boundary of the unciform groove. In this membrane is the ostium of the antrum, but the ostium is really the opening into a small bony canal, into which I cannot conceive it possible for any cannula to enter. In fact, the cannula does not enter the ostium at all, but is so easily pushed through the membrane separating the nose from the antrum, that the surgeon thinks he has gone in through the ostium. This method of irrigation could be carried out in a great many cases, but not in all, due largely to anatomical difficulties. I use it very frequently, but still feel that a thick gelatinous secretion in an antrum is more easily missed than through the inferior meatus. If a large accessory opening is present, the cannula may readily enter the antrum through this ostium.

What is the position of sinus disease in reference to foci of infection? My own view is best expressed by saying I think the brunt of the damage sinus disease does is on the upper respiratory tree, and it is of little importance as a focus of infection elsewhere in general medicine. I had occasion last year to put this question to at least a dozen of the best specialists in the United States, and their replies amply confirmed my view. The same viewpoint may be taken with reference to the constant swallowing of mucopus as causing ulceration in the digestive tract.

TREATMENT

The whole question of chemotherapy in acute sinusitis is, as yet, unsettled. As a general rule, it should not be used. There are exceptions, however, and no doubt in some cases of very acute infections, with responsive organisms, some helpful aid may be given to drainage and other recognized therapeutic measures. I have used 20% sulfathiazole after having washed out acute septic antrums, but I found no remedial response of any recognized value. The situation is somewhat different in acute fulminating frontal sinusitis, where spreading osteomyelitis of the frontal bone takes place, in which the

predominating reaction is of staphylococcal origin. This not infrequently occurs following swimming, and there is a question as to whether the process is induced by contamination of the water, or whether it is due to prolonged chilling of the nasal epithelium, causing a latent infection to become acute.

I have already discussed the principles underlying the treatment of the acute inflammatory diseases of the sinus mucosa, noting particularly the desirability of simple local measures rather than any operative procedures. These local measures are directed to lessening the nasal turgescence so that the natural cure may proceed uninterrupted. Menthol and ephedrine are in all our nasal "sauces", but menthol, used over prolonged periods, is an irritant and its action, by the irritation of the thermal end organs, produces a sense of coolness and patency although there may be an increase of nasal mucosa swelling. Disinfectants are quite useless in the nose. They may be very irritating and increase the nasal œdema. Argyrol and such highly vaunted remedies are rapidly losing their popularity, if not their messiness. When oil drops are used in the nose, they simply run along the floor and never reach the neighbourhood of the sinus ostium, the swelling about which you wish to reduce. If drops are used, the patient should lie down on his back with his head dependent and face up, so that the vault of the naso-pharynx can be made to act as a well into which some of the solution will reach after passing over the area of the ostia. There are some miniature nasal sprays that are really better and simpler methods of use.

The use of any remedy, when the nose is filled up with a mass of secretion consisting largely of mucin and globulin, is of little avail, as this prevents the remedy from acting on any of the engorged tissues. I, therefore, advise gentle douching, not spraying, of the nose with a 2% solution of sodium sulphate (Glauber's salt) which dissolves the mucin and globulin and washes the secretion away. Then the use of a very mild astringent, such as a 1% solution of ephedrine in normal saline solution, is of considerable value. Pain should be relieved by aspirin, codeine, or a very small dose of pantopon, a valuable opium derivative for the relief of pain. If facial pain is severe and the acute process has been going on for several days, the antrum may be washed out once, very gently, with a 2% solution of Glauber's salt. Those who never wash out an acute antrum, I am sure, permit their patients to suffer unduly. Repeated irrigations may, however, retard resolution and keep up the discharge. The use of a shawl about the head and face often gives relief. The application of hot wet towels to the face and nose is very comforting. Some advocate the use of x-rays or ultra-violet rays to lessen acute sinus inflammation. I do not do so.

If the antral œdema is allergic in nature and subsequently sepsis has been added to it, it is little use in treating the allergy then. Later on, however, when nothing but the allergic manifestation remains, something may be accomplished by attention to it, thereby lessening the frequency of acute attacks. Remember the acute process usually subsides in a week or ten days, and complications are infrequent. The subacute, or long drawn out nasal suppurations usually respond to a few irrigations. The nasal and sinus mucosa is often spoken of as the inner skin and I have, because of this, recently been using linimentum calaminæ B.P., and a small amount of a watery emulsion of acriflavine B.D.H. injected into the antrum, and I think highly of this aid.

The chronic cases present considerable difficulty in determining how much one should do. Broadly speaking, small operative measures, directed to increase the ease by which the secretion can be removed, is the object of any procedure. This may involve uncapping the ethmoidal labyrinth by removal of the anterior end of the middle turbinate, or making an additional opening in the antrum under the inferior turbinate. This is readily done under local anæsthesia, and the patient can then be taught to insert a cannula and wash out his own sinus. The correction of a markedly deflected nasal septum may be required to improve aeration and drainage. Remember, a straight septum is abnormally normal. The removal of a septic tooth in the floor of the antrum is often of assistance, but irrigation through a tooth socket is never to be advised.

When one has a patient whose nose is filled with polypi and whose nasal air cells have been involved for a long period, this case is called pansinusitis. Here the cure of the patient, in the sense that his nose and nasal air cells return to normal, is not to be expected. Very great relief may be given, however, by removal of all the polypi and widely opening up the antrum and ethmoidal labryinth. The treat-

ment is long and patients expect too much. Some advocate radical measures, even external operations, but much may be accomplished by intra-nasal measures, carried out over some months, carefully tracing all purulent secretion to its source. If these measures are carried out at intervals, it is astonishing how much relief may be obtained, as the untouched cells have been given a chance to clear up by themselves. This treatment is, some may say, not radical enough, but I have gone through all sorts of radical measures, trying to clear up everything in one sweep, and am satisfied this is seldom called for: unfortunately, also, it is very much overdone.

Radical antral surgery through the canine fossa has in the past few years been much less frequently performed. The intra-nasal window operation should be carried out in such a way that a sufficiently large opening be made not only through the bone, but also through the mucoperiosteum inside of it. Failure to do this, and it is not easy, has prevented the good results that would otherwise ensue. I have long been of the opinion that in many chronic cases, when one is in doubt as to the suitability of an intra-nasal procedure, it would be good practice to open the antrum in the canine fossa, inspect the mucosa, and if a window operation is the procedure indicated, to do it through the canine fossa, where it can be done very much more accurately and satisfactorily. By this measure, you see for yourself exactly the condition of the antral mucosa and deal with it as you desire. This too is the only method by which you can see and know for certain the condition of the sinus mucosa in that particular antrum. The whole procedure is easily carried out under local anæsthesia.

I shall close now, but wish to leave you with the advice given by Sir Felix Semon, whose text I have given to students for years: "Never make the magnitude of your operation greater than the gravity of the symptoms you hope to relieve."

THE SINUS PROBLEM*

By Keith Hutchison, M.D.

Montreal

THIS subject and a paper dealing with it has been in my mind for years. I have felt that before I retire I should put a few thoughts together on this subject, *i.e.*, in about twenty years hence, but the program committee has taken time by the forelock and pushed me into the position where I am to discuss the most loved subject of the hypochondriac, the least understood by the bulk of our professional colleagues, and the butt of pharmaceutical houses and the lay press.

How we otolaryngologists love to have the well dressed individual invade our offices with the pleasing question on his or her lips: "Doctor, how are my sinuses today? Please do not do anything much, as I am lunching at the club": and then again the travelled patient, the one who knows specialists from London to San Francisco: he knows what is best for his sinuses, and outlines a treatment that has always done the trick, possibly an argyrol pack (one of my abominations), or a mentholated, adrenalized spray breathed in from a long meerschaum pipe apparatus that is wonderful.

Years ago I heard Sir StClair Thomson explain that he could only be a nasal swabber once; anything more seemed to suggest charlatanism on his part. My experience agrees with this. How many treatments depend on the doctor and, of course, on the patient, but there is a line that should be drawn.

Sinus disease presents itself in three main groups, acute, subacute and chronic, with two broad divisions, the catarrhal or dry type, and the suppurative or moist type. There are combinations of all of these groups at times in the same patient, and so each case must be dealt with on its own merits and a diagnosis must be established.

The acute sinusitis is caused by bacteria and follows on an upper respiratory infection, even though at times the patient will deny any symptoms to suggest this. So that every head-cold is a mild sinusitis. It is my practice not to use the word "sinusitis" unless I must, because it frightens so many patients. This brings to my mind the many weird tales that I have listened

* A paper read at the Seventy-third Annual Meeting of the Canadian Medical Association, Jasper Park, Alta., June 17, 1942.

to from so many patients, and it is difficult to believe how many fallacies and curious misconceptions can develop in the lay mind. A suitable title for a popular article on sinusitis would be, "What is this thing called Sinus?" How popular these articles are, read with the greatest interest by the sufferers, real and fancied, whose numbers are legion.

The symptoms are definite and I always accept the mid-morning headache as evidence of a true sinusitis, even though nothing definite appears on the first examination. We all know the difficulty of diagnosing headaches, and there is the greatest confusion in medical opinion as to the facial neuralgias, sinusitis, migraine, ophthalmic, toxic types, etc., but when an intelligent patient reports that he felt well on arising and then about ten o'clock in the morning a severe frontal type of headache came on which persisted until mid-afternoon, then disappeared, and the patient went to bed free of pain and discomfort only to go through the same symptomatology the next day, a clear-cut diagnosis of acute catarrhal sinusitis may be made and treated accordingly.

My treatment demands bed rest, hot fomentations to the face, ephedrine solution in the nose, forced fluids, and a rigid rule of no smoking. Two, three or four days' rest generally effects a cure. In hospital cases I find diathermy to the face and frontal area most helpful. This dry group is difficult to handle, because the patients wish to get well too quickly and so indiscretions on their part frequently bring recurrences and cause much grief. This type may resolve with little or no mucoid or purulent discharge.

The acute suppurative group is easy to recognize and treatment is helpful almost from the beginning. Diagnosis is established by a local examination of the nose, the appearance of pus or muco-pus, while the nasopharynx will contain tell-tale discharges. White, yellow or green muco-pus will be present in varying amounts. The symptoms are definite, real pain in the face associated with frontal type headache, often widespread, sometimes localizing behind the eyes. While the headache may be so severe as to last nearly all day in the early stages, it fades away as resolution takes place, the hours of headache narrowing until they meet at midday. Treatment: bed rest, forced fluids, ephedrine in the nose (drops or spray) three or four times, not more, no smoking and very little alcohol, if any. Antral irrigations should be commenced after the acute stage has passed. I feel we can liken the acute suppurative sinusitis to an acute cellulitis. No experienced surgeon will incise until resolution of the acute inflammation has taken place, and I have seen harm done by too early antrum irrigations. All temperature must have disappeared and the patient over definite acute symptoms before conducting irrigations, which are most effective and demanded in the resolving stages to clear away foul, purulent discharges that lie on the floor of the maxillary sinuses, whose drainage openings were evolved when we were apes, jumping from tree to tree. Then we had dependent drainage.

While discussing treatment, a reference must be made to the sulfonamide group of drugs, the true value of which we have not yet come to understand, and time, associated with experience, will be the guiding posts in this important knowledge. In the severe forms of streptococcal, pneumococcal and staphylococcal infections, we have seen the wonderful effects of these drugs, pushed under hospital-controlled conditions. Tragedies of years gone by are being avoided and recoveries secured in cases that would have died before these drugs were available. The literature is developing on this group of cases, and a sound groundwork is being built up. Frank, fulminating, sinus infection with meningitis can be influenced favourably at times.

In the milder type of sinusitis (not to the victims, but clinically so) the evidence of the true value of the sulfonamide drugs is still *sub judice*, and we will have to be patient and carefully assay the reports that come in from our own cases. The lay press has eulogized sodium sulfathiazole in a 5% solution as a cure-all for sinusitis. The argument is perfect. We admit sinus troubles are due to infections of the common group; the new drug kills organisms without harming the patient, if used with care under medical advice; the reaction is complete; and yet I hesitate to be too optimistic, and feel that the final word on this subject has yet to be said. Many patients treated this year with 5% sodium sulfathiazole report uncomfortable dryness of the mucosa with no improvement in their general symptoms. These are of the chronic type with free discharge. Use of this sulfathiazole solution as drops or sprayed into the nose twice or three times a day is helpful in acute cases, while, following antrum lavage, the

instillation of 5 c.c. of soluseptazine (6% solution) is helpful.

In the suppurative group when resolution fails and recurring positive antral irrigations continue until the patient and doctor become weary, then a radical Caldwell-Luc operation is my favourite to produce satisfactory cure. This should be done before time allows an extension into the ethmoids, frontals, and sphenoids. The length of the interval between commencing treatment and final decision varies, but possibly two months should elapse in certain cases of the subacute type before reaching a definite decision for operation. A shorter time is permissible when one encounters a typical chronic maxillary sinusitis that has been present for weeks or months or even years before coming under observation. Then two or three irrigations will suffice to establish a proper diagnosis, and a sound pronouncement for surgical treatment is in order.

Surgery in sinus infections is becoming more and more conservative as the years roll by, and deservedly so. The enthusiasm of twenty years ago has lessened, and one sees fewer of those extensive sinus operations with attendant scarring, failure of success, and so often a patient whose life has been profoundly altered by the circumstances of repeated surgery, long convalescent visits to the proper high, dry places, or, vice versa, according to the specialist's advice. We are finding out that much can be accomplished in the sinus patient by administering the proper treatment early, followed up by antral irrigations, modest intra-nasal operations, etc., convalescent care, and so avoiding major, surgical operations. How many of us really wish we had never seen certain of these cases who continue to complain and inform you that they wish they had never agreed to the original recommendation.

The present day treatment and a proper appraisal of the various methods is difficult, because in ordinary practice we try a combination of all methods, *i.e.*, local medication with shrinking and drainage in view, heat or diathermy for pain, irrigations for thorough cleansing of the antra, bed or modified rest, with avoidance of sharp changes of temperature, the use of drugs for pain or sharp discomfort, sodium salicylates, codein, etc. You will agree with me that when the patient recovers, just what was the magic agent to which thanks should be expressed is impossible to state with accuracy and on scientific evidence.

CONVULSIONS IN CHILDHOOD*

By Harold W. Price, M.D.

Calgary Associate Clinic, Calgary

ONE of the commonest emergencies which the pædiatrician is called upon to treat is convulsions. Few episodes in a child's life strike more terror into the hearts of parents. Fortunately for the child, he is usually not aware of what is happening. Our increasing knowledge of the permanent damage which convulsions themselves may cause has made this an even greater emergency than it has been considered by the profession in the past, when the anxiety of the parents was discounted by the experience that in most cases of convulsions the acute episode passed spontaneously regardless of the treatment employed.

A study of the literature shows that while all of the details of the mechanism of convulsions have not been worked out, there are certain well established causes. Some are hereditary, being due to defective germ plasm, and are recognized clinically as cerebral agenesis, and microcephaly. Possibly, some hydrocephalics should be included here, although it may be impossible to determine in a given case whether the obstruction to cerebrospinal fluid is due to a congenital defect or is acquired from a birth injury. Air encephalography complements the clinical picture but does not prove the point. Ford[1] has produced convincing evidence that most cases of spastic diplegia are due to congenital cerebral malformations rather than intracranial hæmorrhage at birth. Then there is the big group of familial epilepsies that continues to baffle pathologists. The contributions of Lennox[2] and of other workers with electro-encephalography have established the familial relationship. Penfield[3] has contributed to our knowledge of this group and Temple Fay[4] has shown that some of them are due to faulty blood supply of the brain.

That acquired injury of the cerebral cortex lowers the threshold for the production of convulsions has long been recognized and was proved experimentally by Dandy.[5] Probably the commonest cause is intracranial hæmorrhage at birth. Prematurity, with its relative lack of development of elastic tissue, is also a

---

* A paper presented before the Section of Pædiatrics at the Seventy-third Annual Meeting of the Canadian Medical Association, Jasper Park, June 18, 1942.

great contributor to this group. That spontaneous hæmorrhagic disease of the newborn has been a factor is well recognized by pædiatricians, and the routine use of vitamin K should reduce this as a cause. Intracranial hæmorrhage in the baby in all cases of disproportion is the great fear of the obstetrician, and radiological pelvimetry has been a real help to him. There seems to be an increasing recognition of the importance of head injuries as a cause of sequelæ. The nature of the trauma seems to vary with the community. More recently anoxia has come to the fore as a cause of permanent brain damage. In this connection Zimmerman[6] has demonstrated that the convulsions themselves produce brain injury, a condition that has long been suspected on clinical grounds by workers with epileptics. That infections of the brain and its coverings produce convulsions is so well established that encephalitis and meningitis are mentioned only to complete the picture. Similarly, tetanus and intracranial vascular lesions should be included.

Then there is that large group of cases with disturbed metabolism in whom convulsions are seen. While in many types the mechanism is not yet established, the cause is clearly recognized. Disturbances of calcium metabolism are so familiar to pædiatricians that they need not be detailed here. We all owe a debt of gratitude to our own Dr. Tisdall for his pioneer work in this field. McQuarrie and his co-workers have widened our knowledge of the effects of disturbances of water and mineral metabolism[7] and also disturbances of cholesterol and lecithin.[8] Helmholz[9] has confirmed Josephs'[10] work on the effect of disturbances of carbohydrate metabolism. Considerable work has been done on the disturbance of electrolytes but much remains to be clarified. Wegman[11] has produced experimental convulsions with hyperthermia and has demonstrated that conditions which evoked them in the young animal failed to produce them in the adult. In any given case poisons such as lead, strychnine, camphor, etc., should always be borne in mind.

Much work remains to be done on the mechanism of convulsions, although the causes in most cases are recognized fairly readily as the case is studied and various scientific aids are brought to bear on the problem. No classification of convulsions has proved entirely satisfactory.

Our experience is based upon a study of 224 cases occurring in a routine pædiatric practice of a medical group which is based upon family practice. Occurring in a fairly stable community, many of the families have been patients of the group since before the parents were married, or became such with the advent of the first pregnancy. The continuous and fairly complete medical records of a large number of the members of the families were available for this study. In addition, a large proportion of these children received routine pædiatric examination at birth and have been under more or less continuous routine pædiatric supervision ever since, the convulsions forming an episode in a continuous history which has extended from birth to the present time, or until terminated by the death of the patient. This has made possible an evaluation of the family and individual background upon which the convulsions supervened. Such an opportunity is usually not available in series reported from large centres, where, for example, birth histories and feeding histories usually have to be obtained from the parents instead of from actual records made at the time.

Our series was analyzed in accordance with Peterman's[12] classification, and it was interesting to discover that with only two exceptions the differences were within the limits of statistical error. In the total series his percentage of idiopathic epilepsy is nearly twice as great as ours, 23.6% : 12.5%. This may be explained by a proportionately larger number of referred patients in his series rather than any greater success on our part in differentiating the basic causes of epileptiform seizures. Our miscellaneous causes are just twice as large as his, 25.2% : 12.7%. This may be explained by the type of family practice carried on by the group of which pædiatrics forms a part. None of the other figures in the series varies more than 4.5% and the above two differences explain the variations in the different age-groups.

As our cases were being analyzed it became apparent that there was a large group in which more than one factor was operating to make the child susceptible to, or to set off a convulsion. For example a mentally defective syphilitic mother had a child who at nine months had his first convulsions. He continued to have recurrent convulsions with each attack of upper respiratory infection until his tonsils were removed at the age of five years. Since then he has remained well, except for being somewhat backward at school. The mother had adequate and early prenatal antiluetic

treatment, as proved by the subsequent serological state and development of the child. But he was her first pregnancy, was before term; delivery was a difficult high forceps, and during his stay in the hospital he presented the clinical and laboratory picture of an immature baby with an intracranial hæmorrhage. Furthermore, during his first nine months he received very inadequate sources of vitamin D and even after his first convulsion the mother seemed incompetent to keep up his supply regularly. How should such a case be classified? Possibly all four factors played their part, namely, an hereditary brain defect, a brain injury at birth, a recurrent hypocalcæmia, and the superimposed disturbance of an acute infection.

Accordingly, the cases were reviewed from this point of view and it was found that among the total 224 cases there were 102 in which two or more factors were found to be operating, and 6 cases of convulsions occurring during anæsthesia, leaving 116 cases in which only one cause for the convulsions could be established. In these 102 cases there were 10 in which more than two factors were found. In this group of 10 there were three cases of birth injury in which the patient received no extra vitamin D and whose convulsions were set off by infection, and 6 cases with a presumed hereditary brain defect, as exemplified by the clinical picture of cerebral agenesis in the child or an established epilepsy in the family who likewise had received none or very inadequate sources of vitamin D and whose convulsions were set off by infection. The tenth case described above had four factors, presumably.

In the group of 116 cases with only a single cause there were 9 cases of uncomplicated tetany, established by the clinical picture, the feeding record and a blood calcium below 8. But in the group of 92 cases with two factors there were 54 cases in which the patients had received diets definitely deficient in vitamin D, and many of these showed one or two signs of rickets and tetany. In 26 of these 54 cases the convulsions were set off by an acute upper respiratory infection, in 15 by a lower respiratory infection without meningitis, in 5 by otitis media, 5 by diarrhœa, the remaining 3 having encephalitis, which in itself could explain the convulsions.

There were six cases of uncomplicated cerebral agenesis who suffered with convulsions. There were 24 cases in which prolonged observation and family records establish the diagnosis as epilepsy. In addition to these 30 cases with only a single factor there were 21 cases with similar hereditary factors and one additional factor. There were 6 cases with definite evidence of brain injury, which occurred in epileptic families. There was one case of cerebral agenesis in which the seizures occurred when the mother failed to provide additional vitamin D over a long period in the winter. Of the remaining 14 cases with a possible hereditary factor, 9 were set off by upper respiratory infection, 3 by otitis media, and the other 2 by a toxic burn and by pertussis.

There were 28 cases of old brain injury with no other factor to explain the convulsions. About two-thirds of these were acquired at birth. Many of them were due to intracranial hæmorrhage occurring in immature babies, a few with hæmorrhagic disease of the newborn. Also there were cases of disproportion in which operative interference was necessitated at birth and a few were due to anoxia at birth, such as from cord around the neck, asphyxia neonatorum, etc. In the other cases the patients acquired their old brain injury during childhood chiefly from the trauma of severe falls, sleighing accidents, etc., and one case followed after a latent period, anoxia occurring during the course of an anæsthetic accident. In addition to these 28 cases of uncomplicated brain injury, there were 17 cases with a previous brain injury of the above type, in which the convulsions were set off in 4 cases by a lower respiratory infection, in 3 cases by an upper respiratory infection, in 2 by otitis media, and in one each by diarrhœa, poliomyelitis and a toxic burn. There was also one case of meningitis in this series of old brain injuries. The remaining 4 had convulsions while on a very inadequate intake of vitamin D.

In analyzing the remaining cases in which only a single cause for the convulsions could be demonstrated, encephalitis accounted for 13, meningitis for 2, and an insulin reaction for 1. Two cases occurred in pertussis and one in cellulitis. The remaining 30 cases occurred with upper and lower respiratory infections and at the onset or during the course of acute infectious diarrhœa without any evidence then or since of intracranial involvement, such, for example, as thrombosis of the longitudinal

sinus. I suspect that if more of these 30 cases could have been studied more intensively at the time of their acute episode further information, such as disturbed electrolytic balance, might have been disclosed.

The 6 cases occurring during the course of anæsthesia are of interest. In each case it is the only convulsion the child has had and all seem well today. In 5 of the cases the convulsion occurred immediately following a period of hyperpnœa during the excitation of the second stage of induction. Three of these 5 had temperatures of between 102.1 and 103.8° and were treated for myringotomy. None of these three received any preoperative medication. One of the other two was in reduction of a simple fracture, and the patient had received no preoperative sedation. The fifth case was in tonsillectomy and he had received morphine and atropine preoperatively. No cases of convulsions have occurred in a large series of anæsthesias given in our group in which hyoscine has been used instead of atropine. The case in which convulsions developed without hyperpnœa occurred as the child was coming out of the anæsthetic. She was a case of myringotomy with a temperature over 102°. She has had no subsequent mental handicap, but her mother is a mental defective. In four of the above six cases ethyl chloride was used and in two, vinethene.

With such a wide variety of causes, it is obvious that no accurate estimation of the therapeutic value of any one method can be made. Phenobarbital is the drug most commonly used in this series, having been used in 92 cases alone and in 33 cases in combination with other drugs. This is in accordance with others who have written on the subject. Sodium-luminal was effective, with one exception, whenever it was used during the convulsion. Mebaral was used in 24 cases and seems to be preferred by some epileptics. Dilantin was used successfully in seven of nine selected epileptics who had not been controlled by other measures. Dietary and fluid control demonstrated their value in a number of cases of epilepsy and old brain injury. We have never been successful in maintaining a strict ketogenic diet outside of hospital. Antipyretics are of real value in those cases set off by an infection. Some of the mothers of the group of children with birth injuries have learned to forestall a convulsion by the prompt administration of an antipyretic along with phenobarbital. Cold packs to the head seem to be of real value. The traditional mustard bath has been discarded, valuable as it is as a placebo for the family. We have seen one case of scalding from its injudicious use.

The routine treatment of intracranial hæmorrhage of birth in our group has resolved itself into cold packs to the head, phenobarbital to allay restlessness, repeated vitamin K injections if the prothrombin time is at all prolonged, and general supportive measures, including continuous oxygen. Since using vitamin K routinely in the last 800 of our newborn we have not seen a case of hæmorrhagic disease. All of our mothers receive vitamin K before delivery. We have discarded repeated spinal drainage for intracranial hæmorrhage since two successive patients died one afternoon during its administration. It is done to confirm diagnosis.

Where there is evidence of a calcium deficiency calcium-gluconate intramuscularly or intravenously with glucose and saline is now our choice, perhaps because of its ease of administration. It has displaced magnesium sulphate and calcium chloride, valuable as these are. The urgency of instituting therapy often precludes adequate blood studies. After a period it is followed with large doses of percomorph oil, or, if this is not tolerated, then with viosterol or Drisdol. We have six cases of convulsions occurring in children whose source of vitamin D was 10 drops of viosterol a day. Since prescribing 15 drops as the minimum daily dose for prophylaxis we have not seen any who developed signs of calcium deficiency. Its use is restricted to those children who do not tolerate adequate doses of fish liver products. Chloroform during the convulsions has been used sparingly because of its danger in general anæsthesia, but one case of status epilepticus failed to respond to all other measures. Because of the urgency of preventing permanent damage from the convulsion itself we may have been too conservative in its use. Adrenalin was not used in any of the cases, but the work of Gellhorn and his associates[13] and the report of Wyatt[14] demonstrate that it has a place, especially in anæsthetic and hypoglycæmic convulsions.

SUMMARY AND CONCLUSIONS

A series of 224 cases of convulsions has been studied. In 102 of these it was disclosed that two or more factors were operating to produce convulsions. A variety of causes have been

demonstrated. The most common factor, when it was augmented by other factors, and relatively the least common factor when it was the only cause was an inadequate intake of vitamin D. The next most common factor was operative in the group in which hereditary causes were the predisposing ones, the third being old brain injuries.

In conclusion, when the pædiatrician is called to treat a case of convulsions he must bear in mind that the cause is quite likely to be more complex than his original diagnosis would indicate. Each case must be studied as thoroughly as the exigencies of the occasion will permit. Treatment must be applied to each case individually. The problem of convulsions challenges the best in the art as well as in the science of medicine.

REFERENCES

1. FORD, F. R.: Cerebral birth injuries and their results, *Medicine*, 1926, 5: 121.
2. LENNOX, W. G., GIBBS, E. L. AND GIBBS, F. A.: The inheritance of epilepsy, *J. Am. M. Ass.*, 1939, 113: 1002.
3. PENFIELD, W.: The Epilepsies: with a note on radical therapy, *New Eng. J. M.*, 1939, 221: 209.
4. FAY, T.: Diagnosis in convulsions, *Am. J. Surg.*, 1942, 56: 314.
5. DANDY, W. E.: Experimental investigations on convulsions, *J. Am. M. Ass.*, 1927, 88: 90.
6. ZIMMERMAN, H. M.: The histopathology of convulsive disorders in children, *J. Pædiat.*, 1938, 13: 859.
7. MCQUARRIE, I., MANCHESTER, R. C. AND HUSTED, C.: Study of water and mineral balances in epileptic children; effects of diuresis, catharsis, phenobarbital therapy and water storage, *Am. J. Dis. Child.*, 1932, 43: 1519.
8. MCQUARRIE, I., HUSTED, C. AND BLOOR, W. R.: Lipids of blood plasma in epilepsy: variations of lipids in relation to occurrences of seizures, *J. Clin. Investigation*, 1933, 12: 255.
9. HELMHOLZ, H. F.: Discussion following Peterman, M. G.: Convulsions in childhood, review of one thousand cases, *J. Am. M. Ass.*, 1939, 113: 194.
10. JOSEPHS, H. W.: Fasting as a cause of convulsions, *Am. J. Dis. Child.*, 1926, 31: 169.
11. WEGMAN, M. E.: Factors influencing the relation of convulsions and hyperthermia, *J. Pædiat.*, 1939, 14: 190.
12. PETERMAN, M. G.: Convulsions in childhood; review of one thousand cases, *J. Am. M. Ass.*, 1939, 113: 194.
13. GELLHORN, E., DARROW, C. W. AND YESINICK, L.: Effect of epinephrine on convulsions, *Arch. Neurol. & Psychiat.*, 1939, 42: 826.
14. WYATT, O. S.: Convulsions in children while under general anæsthesia, *Minn. Med.*, 1940, 23: 101.

RÉSUMÉ

Les convulsions infantiles constituent un problême diagnostique très complexe où entrent en jeu des facteurs héréditaires et des facteurs acquis. Parmi les facteurs acquis, il faut signaler les traumatismes obstétricaux et leur conséquence, l'hémorrhagie intracérébrale; l'anoxie, les méningites et les encéphalites. Il faut aussi noter que les convulsions elles-mêmes causent des lésions cérébrales. Notons encore les troubles de certains métabolismes, notamment du calcium, de l'eau, des sels minéraux, etc.

Sur 224 cas, il existait chez 102, deux facteurs ou davantage qui pouvaient déterminer l'épilepsie. La privation de vitamine D est un facteur fréquemment associé à d'autres causes mieux connues; seule, cette avitaminose est rarement responsable des convulsions. L'hérédité est un facteur nettement prédisposant; enfin, les lésions cérébrales anciennes contribuent aussi pour une large part à l'éclosion de l'épilepsie. Le diagnostic étiologique est donc très difficile et le traitement est variable selon la ou les causes responsables.

JEAN SAUCIER

SENSITIVITY TO PAIN

(WITH AN ANALYSIS OF 450 CASES)

By E. David Sherman, M.D.

Sydney, N.S.

LIBMAN[1] in his classical contribution on the individual sensitiveness to pain has stressed the importance of gauging the patient's sensitivity to pain in order to properly evaluate the symptoms in formulating a correct diagnosis. The appraisal of the patient's tolerance to pain is also an important adjunct in treatment and prognosis. The variation in symptoms of disease of the same nature in different individuals has principally been responsible for focusing attention on this subject.

Individuals have been classified as: (*a*) hyposensitive, (*b*) normally sensitive and (*c*) hypersensitive. According to Libman, there is a great tendency for the hyposensitive patient to feel less or none of the pain of a given disease and to present unusual and irregular radiations of pain. The hyposensitive patient may have what is called substitution symptoms instead of pain. These symptoms are apparently due to a disturbance of the autonomic nervous system, a number of which symptoms are initiated by reflex mechanisms. Substitution symptoms include burning, numbness, pressure, tingling, prickling and other forms of paræsthesia that may be considered as representative of pain. Libman's hypothesis, after an analysis of his observations, is that in the case of the hyposensitive patient, the pain impulses are delayed or may linger in the autonomic nervous system, while in the hypersensitive patient the impulses travel more directly into the central nervous system. He cites cases of visceral disease characterized predominantly by such manifestations as aerophagia or eructation, yawning, coughing, choking, hiccups and sneezing that may be explained on the basis of the aforementioned theory.

Various methods[2 to 7] have been devised in an attempt to measure the threshold of pain, *e.g.*, the thermal, electrical and chemical methods. In addition to such objections as extensive equipment and the time-factor, these methods have been found to be impracticable in routine clinical examinations. Because of their simplicity, the following tests described by Libman[1] and Hollander[8] respectively lend

themselves best to routine use in clinical practice.

Libman's test for sensitivity to pain is carried out by first pressing the thumb against the tip of the mastoid bone and then slipping the finger forward and pushing the styloid process. The mastoid pressure serves as a control. Pressure on the styloid process is painful to some individuals and not to others. The sensitive point is presumed to be not the styloid process but a branch of the auricularis magnus nerve. Hollander,[8] Wilder[9] and Pelner[10] have pointed out that the Libman test affords only a rough estimation of the patient's sensitivity to pain, for the degree of pressure exerted by the finger cannot be quantitatively determined and is, therefore, an uncontrolled variable in the test.

Recently Hollander suggested another method for quantitative evaluation of the patient's threshold to pain. The instrument consists of a piece of elliptical metal grater, three inches by four inches in size which is sewed to the contact surface of a blood pressure cuff. The cuff is applied on the patient's arm in the usual way, with the metal grater placed on the medial surface of the arm just above the elbow. The cuff is inflated slowly at the rate of about ten mm. of mercury pressure per second. The pressure on the grater prongs that causes the patient to wince, change expression, or cry out, is recorded as the sensitivity level to pain. The individual is not informed what is being done, so that a spontaneous reaction to the examination is obtained. In hyposensitive individuals, no wincing nor objection to the test occurs, even when the limit of the mercury column is reached. In the hypersensitive patient, the sensitivity level was below 110 mm. pressure. In the normal group, the sensitivity level ranged between 110 to 260 mm. pressure. Wilder in his paper on this subject states that the Hollander test was used routinely on an unselected group of cases, with one exception, namely that patients with moderate to severe hypertension were excluded; because these patients usually have had frequent blood pressure readings and are quicker to notice the unaccustomed sensation when the modified blood pressure cuff is applied. Secondly, it was felt that frequently it would be necessary to increase the manometric pressure to excessively painful levels in these patients in order to obtain the systolic blood pressure.

More recently, Pelner has used a device that he terms a sensometer. It is adapted from an instrument called the Geneva Lens Measure which consists of two peripheral fixed points, and one central point which is attached to a watch dial. This instrument is rested on the skin over the proximal phalanx of the thumb held horizontally with the distal phalanx bent at right angles to it, and the number that it registers on the dial by virtue of its own weight is borne in mind. Then the instrument is pressed until the pressure becomes unbearable, and the number corresponding to this sensation is recorded. The difference between the figure read and after pressure on the skin is taken as the patient's sensitivity level to pain.

An analysis of 450 cases in which the Libman and Hollander tests were carried out is herewith presented. This series consists of 260 cases examined in routine office practice; 150 coal miners employed at the Dominion Coal Company, No. 12 Colliery, New Waterford, Nova Scotia who were the subject of study of the effects of a hazardous occupation on sensitivity to pain, and 40 Micmac Indians residing at the Reservation, Sydney, Nova Scotia, who were studied in search of racial peculiarities with respect to pain sensitivity.

TABLE I.

TOTAL SERIES (260 CASES)

Normal sensitivity	170 cases,	65%
Hypersensitive	47 "	18%
Hyposensitive	43 "	17%

TABLE II.

FUNCTIONAL DISEASE (130 CASES)

Normal sensitivity	70 cases,	54%
Hypersensitive	39 "	30%
Hyposensitive	21 "	16%

TABLE III.

ORGANIC DISEASE (130 CASES)

Normal sensitivity	100 cases,	77%
Hypersensitive	8 "	6%
Hyposensitive	22 "	17%

In the total series of 260 cases the hyposensitive group constituted 17%. This figure was approximately the same in the functional and organic types. Libman states that in his office practice, 30% of the patients were hyposensitive. Hollander's figures are 27% for the hypersensitive group, and 29% for the hyposensitive group. The hypersensitive group comprised 18% of the total series.

These data are modified when a sub-division of the total series is made into the organic and

functional types. In the functional types, which contained many cases in which organic disease could not be demonstrated and in which complaints were functional, as in cases of nervousness, chronic exhaustion, anxiety neuroses, and vague and ill-defined pains, the hypersensitive group increased to 30%. In the organic group, in which there was present evidence of organic disease, the hypersensitive group decreased to 6% (Table III).

Of the 47 cases of hypersensitivity, approximately three-quarters (72.5%) were women. Of the 43 cases of hyposensitivity, approximately 90% were men and 10% women.

Although these data are not in complete accord with the results obtained by other investigators, it is to be noted that the majority of these patients are within the normal limits of sensitivity to pain, *i.e.*, 65% for the total series, as compared with 45 to 50% obtained in other reports.

It will be seen from Tables IV, V and VI that the threshold of pain is lower for women than for men. In the total series the mean average for men was 199 mm. of mercury and 156 mm. of mercury for women. In the organic type there was an increase to 212 mm. for men and 173 mm. for women, and in the functional type there was a decrease to 186 mm. for men and 138 mm. for women. These findings would indicate that patients with organic disease have usually a higher threshold to pain than those with functional complaints.

In the total series the hyposensitive figure for men was 25%, in the functional type the hyposensitive figure for men was 23%, and there was an increase to 28% in the organic type. In the functional type, the hypersensitive figure for women was nearly 52%, as against 13% for men. In the organic type, the hypersensitive figure for women was 9% and 4% for men. In the total series, 81% of the men had a reading of over 150 mm. of mercury.

TABLE IV.
PAIN SENSITIVITY LEVEL FOR TOTAL SERIES

	Males		*Females*	
Sensitivity level, mm. of mercury	*Number*	*Per cent*	*Number*	*Per cent*
61- 90	5	3.4	9	8.1
91-110	8	5.4	25	22.5
111-150	14	9.4	16	14.4
151-180	33	22.2	32	28.8
181-210	26	17.4	9	8.1
211-259	25	16.8	15	13.5
260-300	38	25.4	5	4.5
Total.....	149	100	111	100
Average....	199 mm. of mercury		156 mm. of mercury	

TABLE V.
PAIN SENSITIVITY LEVEL FOR PATIENTS WITH FUNCTIONAL DISTURBANCES

	Males		*Females*	
Sensitivity level, mm. of mercury	*Number*	*Per cent*	*Number*	*Per cent*
61- 90	4	5.4	7	12.5
91-110	6	8.0	22	39.3
111-150	13	17.5	9	16.0
151-180	12	16.1	8	14.3
181-210	14	18.9	3	5.4
211-259	8	10.8	3	5.4
260-300	17	23.3	4	7.1
Total.....	74	100	56	100
Average....	186 mm. of mercury		138 mm. of mercury	

TABLE VI.
PAIN SENSITIVITY LEVEL FOR PATIENTS WITH ORGANIC DISEASE

	Males		*Females*	
Sensitivity level, mm. of mercury	*Number*	*Per cent*	*Number*	*Per cent*
61- 90	1	1.3	2	3.6
91-110	2	2.7	3	5.5
111-150	1	1.3	7	12.7
151-180	21	28.0	24	43.6
181-210	12	16.0	6	10.9
211-259	17	22.7	12	21.8
260-300	21	28.0	1	1.8
Total.....	75	100	55	100
Average....	212 mm. of mercury		173 mm. of mercury	

TABLE VII.
AN ANALYSIS OF THE VARIOUS AGE-GROUPS IS SHOWN IN THE TABLE BELOW

Age	*Normal*	*Per cent*	*Hypersensitivity*	*Per cent*	*Hyposensitivity*	*Per cent*
20 and under..	21	60.0	12	34.3	2	5.7
20-50....	108	62.7	30	17.5	34	19.8
50-80....	41	77.4	5	9.4	7	13.2

It will be noted that the age group under 20 had the greatest degree of hypersensitivity, namely, 34%. The oldest age group (50-80) showed in proportion the greatest degree of normalcy, (77.4%), with a comparatively small degree of hypersensitivity. However, no definite conclusions or differences between various age-groups could be ascertained. It is possible that further study will yield more significant findings.

Coal Miners

The Libman and Hollander sensitivity tests were conducted on 150 coal miners who were employed at the Dominion Coal Company, No. 12 Colliery, New Waterford, Nova Scotia. They were all well developed, sturdy and rugged physical specimens. Their appearance indicated that they could tolerate pain of great intensity without complaint. Most of them had worked in the mines from periods ranging from one to over forty years. A considerable number were of Scotch, English and Irish descent, and the remainder were comprised of Russians, Poles, Hungarians, Germans, Italians and Negroes. Their ages varied from seventeen to seventy. They conversed with a devil-may-care attitude and created the impression that they feared nobody. Many of these miners had served in the last war with distinction in the Cape Breton Highlander Regiment which had been noted for its valour. Young men from the age of seventeen were examined and one could note their freshness of youth in marked comparison with the boys of 23 and 24, who looked quite hardened and older than their years, though physically fit. They all agreed that working in the mines for years had toughened them considerably. Most of them on being questioned had had no major illnesses, and spoke very lightly of such ailments as tonsillitis, influenza, wounds or abscesses.

Table VIII.

Pain Sensitivity Level for Miners

	Males	
Sensitivity level, mm. of mercury	*Number*	*Per cent*
150-180	3	2.0
181-210	7	4.7
211-259	27	18.0
260-300	113	75.3
Total	150	100
Average	251.4 mm. of mercury	

An analysis of Table VIII shows that over 75% of these miners (113 out of 150 cases) were hyposensitive to pain, and the remaining 25% had a normal threshold to pain. The lowest reading was 160 mm. by the Hollander test. Eighteen per cent (27 cases) had readings between 211 and 259 mm. of mercury. The average mean reading was 251.4 mm. of mercury. The study of the various age-groups did not show any great significance.

Micmac Indians

It has been noted that the Indians are preponderantly hyposensitive to pain. The Hollander and Libman tests were routinely carried out on forty Micmac Indians at the Reservation, Sydney, Nova Scotia. The average reading for the male was 237 mm. and 230 mm. for the female. Sixty-three per cent of the males were hyposensitive and 46% of the females were hyposensitive. There were no hypersensitive individuals in this group. The lowest reading for the male was 150 mm. and 164 mm. for the female. Boys and girls at the ages of seventeen gave readings from 150 to 210 mm. of mercury. A study of the various age-groups in relationship to sensitivity to pain yielded no definite information.

Table IX.

Pain Sensitivity Level for Micmacs

	Males		*Females*	
Sensitivity level, mm. of mercury	*Number*	*Per cent*	*Number*	*Per cent*
111-150	1	3.7		
151-180	4	14.8	2	15.4
181-210	2	7.4	2	15.4
211-259	3	11.1	3	23.1
260-300	17	63.0	6	46.1
Total	27	100	13	100
Average	237 mm. of mercury		230 mm. of mercury	

Method of Examination

The Libman test was performed first in all cases, and the findings recorded. This was followed by the performance of the Hollander test. An analysis of the 450 cases reveals the accuracy of the Libman test in grading the cases as normal, hypersensitive and hyposensitive. The findings of the Libman test were corroborated by the Hollander test. There were several cases who were sensitive to the styloid pressure on only one side, and these according to Libman react clinically like those who are hyposensitive to both sides. This observation was substantiated by the Hollander test which showed readings in all cases over 260 mm. of mercury, thus relegating them to the hyposensitive group.

Conclusions

1. An analysis is made of 450 cases in which the Libman and Hollander tests were performed to gauge their sensitivity to pain.

2. In 260 cases which were examined in the routine procedure of office practice, 65% were found to have normal sensitivity to pain, 17% were hyposensitive, and 18% were hypersensitive to pain.

3. Women have a lower threshold to pain than men.

4. In the hypersensitive group, over 72% were comprised of women.

5. In the hyposensitive group, 90% were comprised of men.

6. Patients with organic disease have a higher threshold to pain than those with functional disease or complaints as shown in the Tables.

7. No effects of age upon sensitivity to pain could be definitely determined.

8. Examination of 150 coal miners revealed that over 75% were hyposensitive to pain, and the remaining 25% were in the upper limits of normal findings. These findings suggest that a hazardous occupation over a period of years may be a predisposing cause in raising a patient's threshold to pain within the hyposensitive range.

9. Examination of 40 Micmac Indians revealed that 57.5% were hyposensitive, and the remainder were normal. No case of sensitivity was found among them. Even youngsters gave high readings. These findings corroborate the statement that the Indians are a preponderantly hyposensitive race, despite the small number of cases examined.

10. The Libman and Hollander tests agreed in the categorization of all patients.

REFERENCES

1. LIBMAN, E.: Observations on individual sensitiveness to pain, with special reference to abdominal disorders, *J. Am. M. Ass.*, 1934, 102: 335.
2. HARDY, J. D., WOOLF, H. G. AND GOODELL, H.: Studies on pain. New method for measuring pain threshold, *J. Clin. Investigation*, 1940, 19: 649.
3. WOOLF, H. G., HARDY, J. D. AND GOODELL, H.: Studies on pain. Measurement of effect of morphine, codein, and other opiates on the pain threshold, *J. Clin. Investigation*, 1940, 19: 659.
4. MARTIN, E. G.: A quantitative study of faradic stimulation. II. The calibration of the inductotherm for break shocks, *Am. J. Physiol.*, 1908, 22: 116.
5. MACHT, D. I., HERMAN, N. B. AND LEVY, C. S.: A quantitative study of the opium alkaloids, individually and in combination with one another in normal men, *J. Pharmacol. & Exper. Therap.*, 1916, 8: 1.
6. HAUCK, A. AND NEUERT, H.: Untersuchungen über die Hautsensibilität die Schmerzchwellen bei elektrischer Reizung des sensiblen Nerven, *Arch. f. d. ges. Physiol.*, 1937, 238: 574.
7. EDDY, N. B.: Studies on morphine, codein and their derivatives, *J. Pharmacol. & Exper. Therap.*, 1932 45: 339.
8. HOLLANDER, E.: A clinical gauge for sensitivity to pain, *J. Lab. & Clin. Med.*, 1939, 24: 537.
9. WILDER, R. M., JR.: Sensitivity to pain, *Proc. Staff Meet., Mayo Clin.*, 1940, 15: 551.
10. PELNER, L.: The determination of sensitivity to pain, *J. Lab. & Clin. Med.*, 1941, 27: 248.

Case Report

HISTOLOGICAL CHANGES IN CARCINOMA OF PROSTATE FOLLOWING RESECTION AND THE USE OF STILBŒSTROL

By Earle R. Hall, M.D.

Vancouver

A man, H.S., aged 62, with acute complete urinary retention was referred to me by his physician, who stated that the condition was an obstructed bladder due to enlargement of the prostate, which, per rectum, appeared to be due to carcinoma. I palpated this gland and found it to be enlarged, irregular, of firm to stony hardness, and generally fixed—a typical malignant-appearing prostate.

He was admitted to hospital and I carried out prostatic resection. At this time, examination of the bladder disclosed the usual picture of prostatic obstruction without marked complications and little if any evidence of infection, the urine being clear and never showing more than a few white blood cells in the low-power field. Following this operation micturition rapidly returned to normal so that within a few weeks of his hospital discharge he had no dysuria, was completely emptying his bladder, and had no frequency day or night. He was, however, complaining of a feeling of heaviness which appeared to be within the rectum. This at times would become an aching, and at other times a vague type of irritation. He had no energy, felt tired, and, though he had returned to work, found it to be an effort. He also had not regained weight lost while in hospital.

The pathological report of the sections of prostate removed was "Carcinoma, showing fairly extensive infiltration".

The prostate at the time of leaving hospital was generally smaller than previous to operation, but was still hard and fixed, and made one unhesitatingly think of malignancy.

Fifteen months after his hospital discharge, he was given stilbœstrol to take. During this period of time (from operation until com-

mencement of stilbœstrol therapy) he was checked periodically, and, while he had no urinary complaints, he still had the rectal irritation, which, if anything, was becoming worse, and he was gradually losing weight. The prostate per rectum remained suggestive of a malignant process. He improved within a few weeks of taking stilbœstrol, and a few months later had lost the rectal irritation completely. He gained weight and appeared a different person altogether. The prostate also showed very marked and striking changes. It became smaller, softer, and more uniform.

One year after he had been on treatment, he presented an entirely different picture. He had no complaints whatever, was heavier than he had ever been, and, to himself, one of the most interesting features was his ability to work without fatigue. The prostate by rectal examination would pass, if one had not previously examined it, for a normal gland.

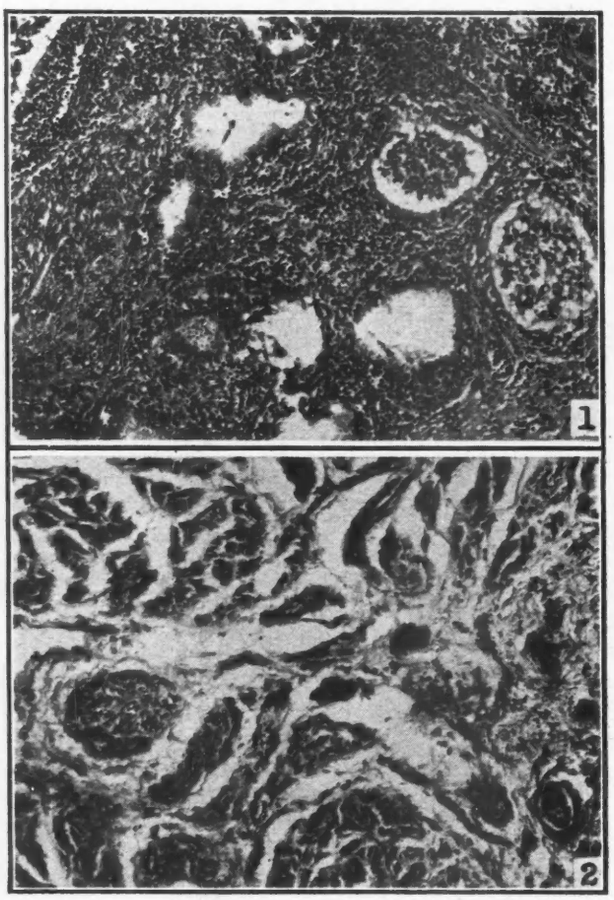


Fig. 1.—Section removed at prostatic resection for relief of bladder obstruction. The histopathology illustrated is that of very extensive carcinoma.

Fig. 2.—Section removed following stilbœstrol therapy. This shows a few scattered carcinoma cells which are more or less distorted and swollen, and connective tissue and muscle fibres.

He entered hospital and I resected portions of the prostate for histological study. These sections show a very definite change from those obtained at the first operation. There are a few scattered carcinoma cells present and, in comparison with the first sections, they are for the most part distorted, and many appear swollen. The general field is now made up of loose connective tissue and muscle fibres. There is an almost total absence of any glandular elements.

SUMMARY

H.S., male, aged 62, with a two-year history of symptoms suggesting increasing bladder obstruction, had a sudden complete urinary retention in April, 1940.

April 15, 1940. The patient, having successfully sustained operative treatment, was discharged from hospital. The pathological report on the sections removed was "Carcinoma, showing fairly extensive infiltration."

July, 1941. The patient, since operation, had been examined periodically, and was now given stilbœstrol, the average daily dose being mgm. v.

September, 1942. Since the institution of hormone therapy he has taken about 1,000 mgm. of stilbœstrol at intervals to date. During this time he has shown the most remarkable improvement in his general health and ability to work. His outlook on life has altered for the better, and any symptom of a distressing nature has completely disappeared.

September 26, 1942. Resection of prostatic tissue for histological study was performed. These sections, in comparison with those removed previously, exhibit remarkable and interesting changes. Carcinoma cells are present, but these are scattered, and in such small numbers that they can actually be counted. These cells also appear for the most part swollen and distorted. The areas in general show practically no glandular elements, but present a loosely packed field of muscle fibres and connective tissue.

Clinical and Laboratory Notes

THE EFFECT OF MERCURY-INDIGO-DISULPHONATE ON BREAST CANCER OF MICE

By J. E. Davis

Biochemical Research Laboratories, Chicago, Ill.

In the search for a chemical cure of cancer the point of departure was the well-recognized fact that the most striking chemical characteristic of cancer is its type of metabolism, in which lactic acid production goes on at the expense of oxygen consumption.[1] Proceeding on the assumption that normal cells are forced into this type of metabolism through malnutrition,[2] the specific object of search was for a means of reversing the cancer type of metabolism so that oxygen consumption might be increased at the expense of lactic acid production. In previous papers[3, 4] it was shown that indigo-disulphonate possessed the property of increasing the oxygen consumption and lessening the lactic acid production of the slowly dying cells of excised tissue. Believing that cancer cells are also slowly dying through malnutrition, and that some might have become too abnormal to permit a reversal of their metabolism, mercury was introduced into the indigo-disulphonate molecule, in the expectation that it might kill off the most abnormal cells, leaving only those whose respiration could be reversed by indigo-disulphonate.

To determine whether this compound, mercury-indigo-disulphonate, would exert the desired effect, it was tried on the spontaneously occurring breast cancer of the Little[5] cancer strain mice. It was administered in solution orally to one group and by hypodermic injection directly into the cancers of another group. The injected solution contained 1 mgm. of the compound per 25 c.c. of water acidified to 36 ten-thousandths normal with sulphuric acid, and the dose ranged from 0.10 to 0.15 c.c. every other day, the amount depending on the size of the cancer. For oral administration a solution was made up as for injection but diluted with an equal amount of water, and the dose was 0.2 to 0.3 c.c. weekly or semi-weekly, depending on the size of the cancer. As the solutions proved unstable, they were made up freshly just before using.

Oral administration was tried on 21 mice ranging in age from 10 to 18 months, the younger being in fair condition, the older becoming emaciated. After 3 doses the just discernible and undetermined growths of the 2 youngest disappeared, and no others appeared until late pregnancy some weeks later. The remaining 19 had cancers varying from pea to bean size at the beginning of treatment. Growth of the cancers continued during the first week or two of treatment, and was then generally arrested for a period ranging from 2 to 6 weeks, the duration seemingly depending on the age and condition of the mouse. This quiescent period finally gave way to one of rapid growth terminating in death.

Direct injection into the cancers was tried on 40 mice similar in age and condition to the previous 21. After 5 to 20 injections the cancers disappeared from 30 and retrogressed in the other ten. Five of the 10 got daily doses, developed symptoms of mercury poisoning, and died during the course of treatment. The remaining 5 were the oldest and most emaciated, and also failed to survive the treatment. All 10, however, reached an intermediate scab stage in which dead cells were sloughed off. Fig. 1 shows one of the 30, in which the scab stage was followed by healing and growth of hair, and at which site no future growth occurred and no remaining cancer tissue was ever found. The older ones of the 30 survived the treatment about a month, but the younger ones survived much longer, bore litters, and did not succumb before another cancer appeared at another site during gestation or lactation.

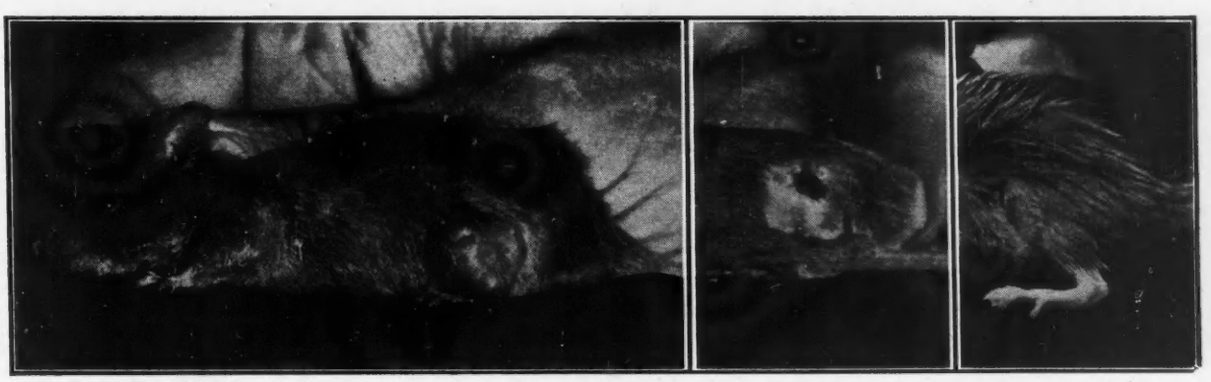


Fig. 1.—Cancer-bearing mouse before, during and after treatment with mercury-indigo-disulphonate.

No cases of retrogression or disappearance of cancer were ever observed in the control mice, or in approximately 200 received at other times

from the Bar Harbor Laboratories, or in an even larger number bred in our own laboratories. Also, no effect was observed when injections similar to those made into the cancers were made into normal breast tissues. This would seem to support the view that the effect of the solution in the concentration used was to destroy the most abnormal cells and to restore the others to normal.

The better method of administration was apparently direct injection into the cancer. That does not mean that oral administration is never indicated, for it may have preventive value as suggested by the arrested growth of the cancers so treated. Also, oral administration would seem worth trying for cancers of internal organs such as the liver and kidneys, which would probably take up the most of this mercury compound just as they do mercury itself.

REFERENCES

1. WARBURG, O.: The Metabolism of Tumours, New York, 1931.
2. DAVIS, J. E. AND SCHMITZ, H. E.: *Canad. M. Ass. J.*, 1939, 41: 178.
3. DAVIS, J. E. AND HASTINGS, A. B.: *Proc. Soc. Exp. Biol. & Med.*, 1935, 33: 1449.
4. DAVIS, J. E.: *Am. J. Physiol.*, 1938, 122: 402.
5. MURRAY, W. S.: *Am. J. Cancer*, 1934, 20: 573.

Editorial

SEROLOGICAL TESTS FOR SYPHILIS

AT the end of the last century Bordet proved that hæmolysis occurs when the red blood cells of a given species are mixed with an anti-serum in the presence of complement. Shortly after he demonstrated the phenomenon of complement fixation. In quick succession Wassermann established that complement fixation occurred when the blood serum of syphilitic apes was mixed with an antigen prepared from aqueous extracts of syphilitic tissues, and Detre that the serum of syphilitic humans gave the same reaction.

For the next twenty years from the turn of the present century the Wassermann reaction of complement fixation was an established laboratory test for the diagnosis of syphilis after many refinements in technique had been made. These included preparation of the antigen by extraction with lipoid solvents rather than by making aqueous extracts, the use of normal organs instead of syphilitic, and the addition of cholesterol which made the test more sensitive without a loss of specificity. Standardization of antigen has however continued to be a problem for solution although beef heart is usually employed for its preparation. It is only in the last year that Pangborn[1] has described the isolation of an apparently pure phospholipid (cardiolipin) from beef heart, which substance when mixed with lecithin and cholesterol and used as an antigen in the complement fixation reaction has given comparable results with the standard prepared antigen used in the routine tests in the New York State Laboratories. This phospholipid is quite different from any previously isolated from normal tissue and chemically resembles the phosphatide isolated by Anderson from the tubercle bacillus.

Syphilitic sera when mixed with a suitable antigen were also known to form a precipitate and for the last two decades the precipitin test has been widely used as a diagnostic measure, as it is simpler to perform and obviates the necessity of using fresh guinea pig serum for complement. A number of these tests which bear the name of the originator are employed, the best known being the Kahn, Kline, Hinton and Eagle. Although the amboceptor or reagin in syphilitic sera which is responsible for both the precipitin and complement fixation tests is probably the same, a comparison of the results of both tests on the same samples of blood showed that, although there is agreement in a large majority of instances, yet there is a discrepancy between the two tests of sufficiently high degree to cause concern. Thus a strongly positive reaction is rarely obtained with either test in the presence of a negative with the other. If a particular test is too sensitive it may lose its specificity and false positives be obtained with non-syphilitic sera. On the other hand if the sensitivity is not of a high order syphilitic sera may react negatively. The essential features of the accepted tests are a high degree of sensitivity with an equally high specificity.

From what has been said above some of the problems which confront the serologist are apparent. The most important of these is the decision as to what test or combination

1. PANGBORN, MARY C.: Ann. Rpt. Division of Laboratories, N.Y. State Dept. of Health, 1941, 16.

of tests he should perform with the trained personnel at his disposal in order to obtain the greatest amount of reliable information for the practising physician without confusing him with conflicting results.[2] He must in fact find a reliable short cut since the facilities of recognized laboratories have not expanded proportionately to the volume of sera now submitted for the serological diagnosis of syphilis. This steady uptrend has been due to the acceptance of these serological tests as a routine in every physical examination, to their being a pre-requisite to marriage in many states, and to their inclusion in the physical examination of some or all of the armed forces.

Certain conclusions are perfectly obvious. First, that all serological tests for syphilis require a trained personnel. Secondly, that whatever tests are used in a particular laboratory they should follow the exact technique outlined by the originator in every detail without individual variations unless the modification has been proved to agree with the original. Thirdly, it would seem preferable to perform both a complement fixation and a precipitin test but that this is in all likelihood not possible under existing circumstances. Fourthly, that the interpretation of the tests or tests as furnished to the physician by the laboratory should be definite and include terms such as positive, doubtful, or negative, rather than a series of pluses and plus minuses. Finally, that standard antigens and as soon as available the chemically pure antigen, be distributed to all laboratories performing serological tests for syphilis through some central authorized laws.

A great deal has already been accomplished by the Committee on Evaluation of Serodiagnostic Tests for Syphilis and the United States Public Health Service. In the meantime in Canada an interim degree of standardization in reporting has been suggested to all Provincial Laboratories by a conference of serologists in Ottawa last June. All of their findings have not as yet been published but it is permissible to say that they have recommended that all sera be first submitted to an accepted, highly sensitive precipitin test (Kahn, Kline, Hinton, Eagle) and that all negatives be so reported as *negative.* The sera that react positively with the preliminary precipitin test are then repeated with a recognized complement fixation test such as the Kolmer or Eagle and if this is strongly positive (+++ or ++++), the interpretation is given as *positive.* All sera positive to the precipitin test and negative or weakly to the complement fixation test are reported as *doubtful please repeat* or simply *please repeat.* In treated cases the results of the tests are given without any interpretation.

The serologists themselves are perfectly aware that they may occasionally miss by this routine one of the cases in which the complement fixation test is positive with a negative precipitin reaction. However, if a highly sensitive precipitin test is employed and the tests are read closely, such instances will probably be rare. Also, if the dark field examination of early lesions is continued and expanded as a necessary part of the laboratory diagnosis of syphilis, there should be even fewer failures in diagnosis. The scheme outlined above at least offers the serological laboratories a fair chance to meet the national emergency with the facilities at their disposal. Probably the greatest advantage of its acceptance besides standardization, will be avoidance of the unnecessary treatment of patients without clinical signs or history of syphilis where the diagnosis has been based entirely on a weakly positive reaction with one or other serological test.

ARNOLD BRANCH.

2. The Serodiagnosis of Syphilis, Supp. No. 9 to Venereal Diseases Information, U.S. Pub. Health Service, 1939. Being the Proceedings of the Assembly of Laboratory Directors and Serologists held under the auspices of the Committee on Evaluation of Serodiagnostic Tests for Syphilis and the U.S. Public Health Service.

It is an elementary principle of psychology that we should not try to dam up and push back the energy and passions of men, but should rather direct and entice them into desirable channels. It has been the world's tragedy of the last half century that effort was not made and ways were not found to encourage the energy and ambitions of the German people and of their rulers toward lines of action that would be good for them and for the rest of the world. It is perhaps impertinent to suggest that our governments should study psychology. But I can at least recommend that psychologists study government. If we do the work we should do in that field, we may hope to see psychologists attached to Departments of State.—*Science News Letter,* December 6, 1941.

Editorial Comments

Pasteurization of Milk in Canada

There is everything to be said for, and little to be said against pasteurization of milk; and that little is of no scientific value. That is why there has never been any worthwhile protest against pasteurization even by those who would prefer to use raw milk. But when the situation is reversed, and those who advocate pasteurization find that they are compelled to take raw milk, then there is strong and effective protest.

This in effect is what has come about in England according to a report from our London correspondent. The introduction of a scheme for "zoning" of milk supplies (to ease transport difficulties) has necessarily deprived many people of the choice of their milk. It is well known that a large proportion of milk in Great Britain is not pasteurized and may be classed as "unsafe" according to public health standards. This has been recognized and efforts are being made to improve matters, but at present the situation is not satisfactory. The new zoning limitations however, are in effect the denial to some people of their right to choose safe milk, even if the denial has come about inadvertently.

The result has been the sending of a strong medical deputation to the Minister of Food in protest. In their representations the deputation has quoted Canada's example in the enforcement of pasteurization, but let us lay no flattering unction to our souls in this respect. Ontario, yes; Canada as a whole, no. British Columbia, Quebec and New Brunswick show the least enviable records with regard to the supervision of their milk supplies. In some areas there is 100% insistence on pasteurization, but alongside of these there are districts with no pasteurization at all, or only partial attempts at it. The high standard established and maintained in Ontario stands out like a full beacon in comparison with the points of light scattered throughout the dark areas in the Provinces mentioned. It is only fair to add that at the moment a strong effort is being made in Quebec to strengthen the measures for safeguarding milk, chief amongst which is insistence on pasteurization.

Honours for Dr. A. E. Archer and Dr. Wilder Penfield

We note that the University of Manitoba has conferred its honorary LL.D. degree on Dr. A. E. Archer, President of our Association. Dr. Archer's increasing labours in Association work are too well known to be recapitulated, and it is with great pleasure that we record this recognition of his work.

Dr. Wilder Penfield has been made a Fellow of the Royal Society. This is an honour which comes only to the few and after achievements generally accepted and outstanding in their nature. We extend our warmest congratulations to him.

Medical Equipment for Great Britain

Eighteen months ago we published an acknowledgment from the Committee in charge of collecting medical equipment for Great Britain, under the chairmanship of Dr. E. A. McCulloch. We are now informed that since then additional valuable contributions of instruments have been received, chiefly from the Western cities, Winnipeg, Edmonton, Vancouver, Victoria, etc. Amongst these is particularly noted a magnificent set of eye, ear, nose and throat instruments belonging to the late Dr. Harvey Smith, of Winnipeg.

Dr. McCulloch informs us that the large shipment sent overseas last year arrived safely, and he has had official acknowledgment from London, as well as notes of thanks from hospitals in England. We also published Dr. F. R. Fraser's letter of thanks in March. It is pleasant to think of the direct and immediate value of these gifts.

The later contributions have all been despatched in a second shipment, but no word of their arrival has yet been received.

Social Insurance

It must be now generally known that the subject of social insurance is being exhaustively studied in Parliament. There is as yet no formal Bill before the House, but a select committee of 41 members has been appointed under the following order of reference:

> "To examine and report on a national plan of social insurance which will constitute a charter of Social Security for the whole of Canada, and, to that end, to examine and study the existing social insurance legislation of the Parliament of Canada and of the several provincial legislatures; social insurance policies of other countries; the most practicable measures of social insurance for Canada, including health insurance, and the steps which will be required to effect their inclusion in a national plan; the constitutional and financial adjustments which will be required for the achievement of a nation-wide plan for social security; and other related matters."

It is hardly necessary to point out that such an investigation involves extraordinary labours. The Select Committee is receiving evidence from what is essentially a cross-section of our social structure. Our own Association has submitted its point of view in detail, and allied bodies such as the Canadian Hospital Association, the Public Health Services, the Canadian Tuberculosis Association, the Canadian Nurses Association, have all presented similar reports. There will be representations from many more groups.

Such an investigation will be peculiarly instructive. That it should bear fruit beneficial in the widest sense is our most earnest hope. We must however expect a long period of assimilation and maturation. For our part there is still need for discussion and study of the implications of health insurance.

Medical Economics

HEALTH INSURANCE

By R. M. Stalker, M.D.

Ormstown, Que.

There is every indication that there is to be a vast change in medical service in Canada. As is customary in a democratic country, the evidence that this change is coming has been slowly accumulating for several years. The practitioners of medicine are now fully aware of the fact and are anxiously waiting to learn how they are to be affected by the "New Deal". During the years that it has been evident that this change is inevitable organized medicine has been very vigilant. It has studied the various systems that are functioning throughout the world and has acted in an advisory capacity between the members of the profession and the legislators.

We now hope that organized medicine will continue its vigilance. We hope that it will be as successful in supervising the details of the structure as it has been in laying the foundation. We hope that in the change from the old to the new the general standard of medical practice will be improved and that individual freedom and initiative will be preserved.

It is natural, however, that the general practitioner should want to know more. While he is aware that a change is inevitable, he is unable to visualize it. While he realizes that time is the great healer and that only by experiment and trial will the rough places be made smooth, he has a desire to see a tangible specific plan of "how it is to work." He also feels that the plan as presented so far has been studied and formulated by those who have given their time and thought to organized medicine. He believes that these men in the great majority of cases are university men, consultants and specialists, and that these men have had very little contact with the problems of general practice. While this criticism may have much truth in it, we, the general practitioners, are to blame for not expressing ourselves. I expect that the reason is that we feel incompetent to express our opinion in such an important issue. I feel, however, that if many who are interested in this problem would study the general principles and comment on the plan from their own viewpoint much valuable information might be obtained.

It is with these thoughts in mind that I wish to comment on one principle only. In doing so I have endeavoured to visualize the plan from the physician-patient viewpoint. I have tried to foresee the plan operating in the patient's home, in the physician's office, in the office of the consultant or specialist, or in a public or private hospital bed of a non-teaching or teaching hospital.

The question has been asked: Which plan do you prefer, fee for service, capitation, or a combination of both? I have been informed that the vast majority have expressed their desire to have the fee for service plan except in exceptionally remote districts where a salary basis would be obligatory.

It is not my purpose to discuss the pros and cons of these plans. I do wish to state that I agree very definitely with the majority opinion. I support this view after watching the capitation method function in (1) The Health Insurance plan of Great Britain, (2) Industrial medicine in this country.

Nevertheless, if we adopt the fee for service plan, we must expect a tremendous increase in case history and report writing. Questions that are being asked at present by practitioners are really very important, such as: (1) Must a complete record and report be made for every trivial disorder? (2) Will forms with fixed questions, such as the Workmen's Compensation Commission employs, be required in every case? (3) Will these reports be required in duplicate or triplicate? (4) If a consultant is required, must a request be made to some distant and uninterested commission?

It might be relevant to mention here that most stereotyped question forms are often filled in days, weeks or even months after the case is active and therefore they lose their real truthfulness. The reason for this is that most practitioners have had their fill of case-histories in student and hospital days, and have, I believe, a distaste for this type of work, especially when stereotyped questions are to be answered. Consequently, might one not ask the question "Will the great common good which should result from Health Insurance not be at first hindered and finally completely lost because of the records and reports required?"; also, "Will the final result not be the capitation method with the 'malignant degeneration' that it is certain to bring?"

I, therefore, wish to suggest a plan of record keeping which I hope might not only make the "fee for service" workable but would, in addition: (1) stimulate a higher standard of general practice; (2) increase the benefits of preventive medicine by thorough complete physical examinations; (3) reduce or almost eliminate reports to a central office; (4) bring the regional medical officers into intimate contact with the problems of general practice.

SUGGESTION FOR RECORDS

I would suggest that each practitioner be required to keep a simple standard type of record for each insured person; that this record be kept on file in the practitioner's office and be his property. It might be something of this type: (1) letter-sized folder; (2) a plain lined

sheet of paper with a very small amount of printing, such as, name, address, age, date and one longitudinal margin; (3) a comprehensive laboratory sheet.

Certain instructions would be sent to each practitioner attending the insured person.

During the attendance, preferably at the first visit at the office or home, a complete, thorough physical examination would be made and recorded. Specimen types of records would be sent out, but it would be left to the individual to make his own record. Literature from the Commission and stimulation from the regional officer would improve the type of record kept and thoroughness of the physical examination. It could be suggested in the instructions that the usual plan would be followed, *i.e.*, complaints, history of present illness; physical examination should include notations, negative and positive, on various systems. Finally, notation of special examinations believed necessary, such as, blood Wassermann test, urinalysis, hæmogram, gastric analysis, basal metabolic rate, x-ray, etc. If he is not equipped to do such special examinations, recommendation is made and the patient is advised where they are to be done. Follow-up visits would be simply recorded as to date and relevant facts as to the progress of the case, any facts concerning re-check examination and prescription or treatment given.

When a patient has not reported for a certain length of time and has not had a complete physical examination by another practitioner, then the practitioner is advised to repeat the examination.

In the margin previously mentioned, the fee is recorded according to the tariff of the commission. (The practitioner could keep his own personal account book if he so desired). In the letter-sized folder all correspondence and reports would be kept relevant to that patient, such as, the consultant's reports, reports on special tests, etc.

These records would be checked by the regional officers in the practitioner's office. These men would need to have the power to visit the patients occasionally to verify the visits and facts recorded. They would need to be well trained men with tact and good judgment and sound integrity. It is hoped that they would be controlled by organized medicine and not be political appointments. Once the record was approved by the regional officer, the account would be forwarded to the central office for payment. No further report would be required.

If the practitioner wished a consultant's opinion or the patient requested another opinion, it could be arranged as in private practice. The record of the consultant or specialist would be inspected by his regional officer. If the patient is treated in a hospital, a similar type of record is kept and examined by the regional officer.

ADVANTAGES

Medical records would be compulsory but not so elaborate as to prohibit their use. They would be the property of the practitioner, which should stimulate him and result in a higher standard of practice.

Preventive medicine would certainly be improved by the complete physical examination.

These records would be made at the time that services would be rendered. In the case of house visits very soon afterward, and, if no record, no fee.

This should reduce, or nearly eliminate reports to some central office where some inexperienced and uninterested civil servant has the power to act upon them.

Contact of commission with practitioner would be intimate and not remote.

DISADVANTAGES

Writing records will still be necessary. For the very busy practitioner whose work is mostly that of seeing patients in their homes, it would require additional labour. To overcome this he could evolve a simple system of keeping notes which could be rewritten by himself or secretary later.

The unscrupulous practitioner will be able to pad his books. He could make many "hello calls" and still be within the law. However, if the regional officer is an able man, he would soon find this out, and would find ways and means to control him.

It may be stated that too many regional officers would be required. Since reports must be examined it does not seem that it would require more work in the practitioner's office than in a central office. The regional officer would very likely require trained lay assistants.

A person's age is not dependent upon the number of years that have passed over his head, but upon the number of colds that have passed through it.—Woods Hutchinson.

All a man's powers are not too much for such a profession as medicine.—Oliver Wendell Holmes.

Age lends the graces that are sure to please;
Folks want their doctors mouldly, like their cheese.
—O. W. Holmes.

Surely every medicine is an innovation; and he that will not apply new remedies must expect new evils.—Bacon.

Integrity without knowledge is weak and useless. . . . Knowledge without integrity is dangerous and dreadful. —Samuel Johnson.

It is better not to know so much than to know so many things that ain't so.—Josh Billings.

When a man seeks your advice he generally wants your praise.—Chesterfield.

Men and Books

DR. MICHAEL CLARK*

By G. D. Stanley, M.B., F.I.C.A.

Calgary

During the past ten years the historical group of the Calgary Associate Clinic has travelled far and wide in its studies in historical medicine. Truly these "far-away fields" have proved "green", but it occurred to us recently that we might be repaid by gathering from the fruitful harvests of medical history garnered in our own neighbourhood. Even here we chose not to restrict our survey to the works of men who have left their contribution to the science of medicine alone, but to outline the work of some doctors whose medical successes were relatively unimportant, but who have left their mark on the history of their country in other spheres of life. Thus, Sir Charles Tupper and Sir James Hector have been presented already, and today we shall sketch briefly the career of Dr. Michael Clark.

Dr. Michael Clark, commonly called "Red Michael" because of his flowing red beard, started life as a practitioner in medicine and later became one of the most polished and effective debaters and orators who ever sat in the Canadian House of Commons. In this respect he can be ranked fairly with Howe, Laurier and McGee among Canada's outstanding political speakers. He was forty-one years of age when he arrived in Canada and was already thoroughly saturated with British politics. He early developed this taste for politics, for while he was still at Edinburgh University and had not attained his majority, he was the chief platform stumper among the students in an election campaign in which they swung the Rectorship from its established seat with one of the old professors, to Lord Rosebery, then a prominent Liberal in Great Britain. He graduated in medicine at twenty-one years of age and practised his profession during the next twenty years, first at Belford, and then at Newcastle-on-Tyne. However he was first, last and all the time, in England, then in Canada and to the end, an uncompromising and determined free trade politician according to the Manchester school. Some admirers in Canada have remarked on the frequency with which this fiscal conviction would seep through into his most casual conversations even in matters completely irrelevant to Free Trade.

During all his medical years he was a studious, industrious and unflinching disciple of Liberal idols and, proverbially at least, sat constantly at the feet of Cobden, Bright and Gladstone. Thus, as an enthusiastic and ambitious follower, he soon found himself preparing for public speaking. The Hon. E. M. MacDonald tells of having met Hon. Arthur Henderson at Geneva in 1924 when the latter enquired for Dr. Clark. He said, "You know he and I learned to speak through addressing Methodist open-air meetings at Newcastle-on-Tyne, and from that we became great admirers of Sir Edward Grey. . . ." Clark next went on the hustings for Viscount Grey in the 1882 elections and developed into a much-sought political speaker. He was elected to the Board of Education in Newcastle as an associate and admirer of Lord Morley. E. A. Corbett in a recent broadcast paid tribute to the force and character of his diction and the richness of his educational training and cultural background. His ability to quote the classics, the choicest selections from a wide range of prose and poetry and from the best speeches of England's greatest statesmen has seldom been equalled in Canada. Dr. Clark's son told the writer recently that at fourteen years of age his father was gold medallist in four languages at Elmsfield College, York. That was his start and he never ceased his studies. He became a successful practitioner in general medicine and applied himself unsparingly. Nevertheless his mind was bent elsewhere and most of his studies turned to the classics, literature and politics. When in 1902 a breakdown in health forced him to leave England for Canada, it is probably fair to say that medicine had become a necessary side-line, and politics his primary activity. He never resumed medical practice after coming to Canada. It is asserted that the College of Physicians and Surgeons of the Northwest Territories insisted that he must register before doing any practice. Dr. Clark resented this bitterly and refused to resume practice in Canada. However, he soon became wholly launched into the political waters of his adopted country.

We shall not discuss any of the troubles and disappointments which prompted him to turn his back on his old haunts and associations in England and to seek a new start in life, new friends and home in the Canadian West. In any case, that was his determination in 1902, and that determination soon found him on a new homestead in the brush country on the Little Red Deer River, sixteen miles west of the town of Olds, Alberta. He had known something of Eastern Canada, for when Elizabeth Smith moved with her parents from Belford to Hamilton, Ontario, Clark had promptly followed her, and they were married at Hamilton in 1882. They returned to England where Clark continued his medical practice. After his return to Canada and the establishment of his home-

* Presented before the Section of Historical Medicine at the Seventy-third Annual Meeting of the Canadian Medical Association, Jasper Park, Alberta, June 19, 1942.

stead, he was joined by Mrs. Clark and their four sons.

From medical practitioner in industrialized Newcastle to homesteader in the "wild and woolly west" was a radical change. Clark himself admitted he "hardly knew the difference between the back end and the front end of a cow". His son George writes: "As evidence of this I would recall that after getting a shack built on the homestead, he put a lean-to building against his bedroom wall, to house the first two cows . . ., which of course eliminated any possibility of sleep for a man of his type." George writes further: "I well recall his first and last attempt at driving a team of horses and a skeleton wagon across one of the many ditches we had in those days. . . . He didn't hit the ditch at the right angle, the horses jumped, off he went stretching his full length in the ditch before the back wheel ran over him. . . . He jumped right up however, covered with mud and water from head to foot, and still was smoking his pipe. . . ."

His first public appearance in Canada was at the little log schoolhouse near his own homestead where the population of that community had gathered to hear local celebrities debate the all-important question: "Is marriage a failure?" Rev. Dr. Thomas Powell was present and tells of the following incident: Clark had been chosen as critic for the evening. The leader of the affirmative had his third wife. In debating, this speaker illustrated the failure of marriage by using Solomon as the horrible example. Later when giving his summary as critic of each speaker Clark said: "And what shall we say of the leader of the Affirmative? Here we find him blackguarding poor old Solomon, and he himself is following in his footsteps as fast as he can." All howled and shouted with glee, and it almost caused a rift in the school district. Incidentally, Clark's tendency to "whale into" opposing speakers has been commented upon frequently. For instance, the Hon. Robert Manion, in writing that Dr. Clark was the best all round speaker he knew, said: "He had one fault; he didn't care whom he hit. In other words he would sacrifice a friend for a jest."

In Parliament he was always a powerful and aggressive debater. It is as remarkable as it is unique, that his best speeches were prepared "on foot". His practice was to take a long walk, preferably with a friend, elaborate his arguments and formulate his "highlight" expressions, rating their effectiveness by the friend's reaction. Mr. Sam Charters, ex M.P. for Peel, affirms that "one of his most outstanding performances was during the discussion of the Navy Bill in 1912. The measure was fought for two weeks and was the most disorderly witnessed in Parliament. 'Red Michael' was a leader in the strife and at one time became so obstreperous that he was 'named' by the Speaker . . . but, thanks to the generosity of Sir Robert Borden the fiery Michael was allowed to escape. He felt the indignity heaped upon him, and to his credit, be it said, never forgot Sir Robert. . . ."

"In social gatherings Dr. Clark was usually the leader. A brilliant conversationalist, a good story teller, something of a singer, and with considerable capacity for 'that which cheers' he was always a welcome member." Yet he was never close to the masses. Actually he was somewhat "standoffish", depending upon his inherent ability to gain and retain him public support. A newspaper reporter once told a graphic story of Clark's first speech in the House. He had bided his time and got the eye of the Speaker just after one of Sir George Foster's speeches. The pressmen, noticing that a boresome Western farmer was following Foster, left the gallery as was their habit. Presently the scout, left on guard, came rushing into the reporters' room with the astounding news, and wildly excited, that "a Western farmer is giving old Foster hell". From that time on Clark was always good copy for the press gallery and became a prime favourite around the Parliament Buildings. One press gallery writer said: "To meet Clark in the corridors was to get a breeze that swept like a Chinook across the frozen waste of old line politics. In the gloom of the lobby this apostle of red hair and rubicund visage was a beacon light."

Several prominent politicians have affirmed that one of Dr. Clark's greatest debating conquests on the public platform was when he appeared in Paget Hall, Calgary, along with Hon. Frank Oliver to discuss the Navy Bill of 1912. They had to face a decidedly hostile audience on R. B. Bennett's own stamping-ground. Oliver was stumped completely in the preliminary canter, but Dr. Clark by his use of all the arts of the orator, gradually and skilfully swung the temper of the audience and ultimately carried them into round after round of applause.

Clark's first significant appearance before the Canadian public was in 1905 at Alexander Hall, Calgary, when a Liberal Convention labelled Dr. A. C. Rutherford as Alberta's first Prime Minister. "No real issue came before the convention", the late W. M. Davidson has written, "but he (Clark) spoke so much more fluently than the rest of us that everyone took notice. It marked him as the long looked for warrior in the Liberal camp who was needed to cross swords with that invincible Tory, R. B. Bennett, and in those days 'R.B.' was the equal of any human being when it came to a rough and tumble encounter." Incidentally, another incident of which the writer heard, but which had nothing to do with Dr. Clark, demonstrates the eagerness of the early Liberals to witness the slaughter of "R.B.". It asserts the late Dr. Rutherford enrolled a special gladiator for that purpose, but found him a disappointment and

exclaimed: ". . . I brought you here to eat Bennett, but you wouldn't eat."

Many incidents are told of Dr. Clark's ability to "come back" at his interrupters. E. A. Corbett narrates a good one: "He was fond of quoting Scripture. . . . At a small country schoolhouse he was annoyed by an opponent who kept shouting 'Louder!' Dr. Clark's rejoinder was: 'Ladies and Gentlemen! The Bible tells us that the heavens shall vanish away like smoke and the earth wax old like a garment, and they that dwell therein shall be in like manner. And on that day Gabriel will sound his horn, and the righteous will be gathered up into heaven and the wicked cast into outer darkness. And I have no doubt at all, friends, that when that day comes, and the trumpet sounds, my diminutive friend back of the stove will shout, 'Louder!' "

On another occasion in the House some members called "Louder". Clark rejoined: "Well, I hope my voice is at once circumventing the acoustics of this chamber and penetrating the somewhat dull faculties of my interrupters."

A classic illustration of Clark's agility in debate is found in Hansard, many years ago. He was criticizing the Department of Agriculture. It had endeavoured to improve the quality of livestock among the French Canadians by supplying some large short-horn pure-bred bulls. The result was that the small habitant cows could not bear the calves and died in calf-labour. The habitants were incensed and rose in revolt. They killed one of the bulls and castrated the other. Dr. Clark told the story of the tragedy in his best satirical manner, weeping with the industrious God-fearing habitants, who, in an effort to preserve their hearthstone and keep alive their possessions had been forced "to destroy one of the invaders and reduce the other to a condition of benevolent neutrality".

Many will recall the famous prohibition debate in the arena at Calgary, when Dr. Clark and the Rev. Hugh Dobson were the debaters. Two definite conclusions stood out: first, Dobson presented the better arguments, because he had the better side of the question; second, Clark overwhelmed his opponent as far as the sentiment of the audience was concerned, because of his skilful employment of all the arts of a platform orator. Clark was perfectly sincere in the paradoxical position he took on the liquor question. In private conversation, as indeed in public statement, no man could be more critical of the evils of the liquor traffic than he was; but he argued even more determinedly, that prohibition was opposed to every principle of that personal liberty and of that democratic liberalism which constituted the very breath of the life he had lived from his boyhood. Thus his last public appearance when he stumped Alberta urging the repeal of the prohibition law was perfectly consistent. Temperamentally, he was so constituted that one had to agree with him to keep his good graces, and certainly when his conception of "Liberalism" was involved. Thus he was suspicious of the Liberal prohibitionist. One of his greatest political friends told the writer that Clark's friendliness cooled decidedly when that friend came out publicly as a prohibitionist.

Dr. Clark's first jump into the Canadian political arena was at the first Provincial campaign in 1905 when he became the Liberal candidate in opposition to Don Heibert, the Conservative. Clark was one of the two Liberal candidates in the province to be defeated. "He felt greatly humiliated by the result, not so much because he was beaten, but more because he was beaten by one who had never even heard of Adam Smith or 'The Wealth of Nations'."

In 1908 he became the Liberal candidate in the Red Deer Federal Constituency, when he defeated the late Mr. Justice A. A. McGillivray. The Liberals under Laurier were then in their heyday of ascendancy. He was re-elected in 1911 when the issue of free trade was all but made for his candidature. In 1917 he was re-elected as a supporter of the Union Government.

Dr. R. J. Manion's book gives an interesting conversation in respect to Clark's opinion of a member's usefulness in the House. "Every man in this House has something in him if you can find it. Sometimes it is damn hard to find, but it is there just the same". He insisted that the discreet use of speaking in the House was a real virtue, for he said "A great fault in the Commons is speaking too frequently. This applies to a new member particularly." Dr. Manion enquired: "I suppose a new member should never speak in the House unless he is very familiar with his subject?" "That is quite right, Manion", replied Red Michael, "and even then in most cases he should remain in his seat." However, in some particulars, Dr. Clark was not overwhelmingly popular with some Liberal associates in the House. Hon. E. M. MacDonald, P.C., K.C., writes the following in his "Recollections": "He (Clark) never seemed to adjust himself to Canadian conditions, although his speaking abilities carried him far. Outside of his speaking abilities he was practically of no use in the House of Commons, so far as committee work was concerned, and occupied himself nearly all the time in preparing for the next speech." But MacDonald's "Recollections" were written long after many words had passed between Clark and his former associates, amongst them the following gem of satire: Leader D. D. McKenzie had invited the insurgent Liberals after 1917 elections to return to the fold. Clark replied "I am bound to say, having regard to that speech from the point of view of constructive ideas of political policy, that I think he ought to have added to his figure, when he told us that the lamp was burning in the kitchen and the string was on the outside of

the door, he ought to have added the warning, 'Bring your own provisions'. Now I ask any honourable gentleman on either side of this House to read the speech of my honourable friend if he has forgotten it, and to find out what constructive planks of Liberalism were set forth in that speech. Why, Sir! there is far from the fatted calf awaiting those who return! Little Mary was rich in comparison, for she at least had a little lamb."

Thus there is Dr. Clark's side. Whether he was still "too British" for his confrères, the fact is that as time went by he became annoyed with some Liberal colleagues and charged them with being "too slow-going". In private conversation he would even describe Laurier as "no Liberal but an early-Victorian Whig". Domino in "Masques of Ottawa" summarized the argument as follows: "Clark was the mountain-peak which the Liberal Party had left for the fleshpot sojourn in Egypt. . . . Laurier knew that in practice Clark was magnificently wrong; in theory superbly right. Therefore, he indulged and admired him."

Probably Clark's later stand for Union Government may have brought forth many criticisms against him such as: "he had little interest in anything except Free Trade", or "cared little for Canadian problems". Be all that as it may, it is certain that when the Great War broke out he was heart and soul for Canada and her participation in the war. "The war to him was a great emergence of Liberalism in the world over, when Peace should bring Free Humanity, Free Wheat, Free Trade." Three of his sons went overseas with the Canadian forces—all of whom gave their lives as a result of the war.

Canada's part in the war later constituted Clark's break with Laurier. His stand, that of dropping all partisanship during the war was outright and immediate. A party convention was actually in session in Calgary on the day war was declared. John Blue states that a resolution by Clark insisted on "a party truce in the face of the crisis that threatened the Empire". The late W. M. Davidson told the writer that in 1916, A. L. Sifton had everything lined up for a Provincial election when Clark 'phoned him in violent remonstrance, and those of us who knew Sifton can appreciate how determined Clark must have been to sway A. L. Sifton. The election was postponed for a year.

Very early Clark informed Sir Robert Borden that he would not oppose the government in its war efforts. When Union Government was mooted Dr. Clark and Hugh Guthrie were the first Laurier supporters to proclaim its need. The conscription issue brought the break with Laurier. "In all his life (Laurier) never got from a political foe such a searchlight on his soul as his once devoted follower gave him in this speech." Even Clark's personal note contained a height of accusing vindication, when in that great speech he said quietly but sincerely: "I have a little toddling grandson on my farm out West today whose father was killed with a gunshot wound in his neck two weeks ago. I say to you, Sir, on my soul and conscience I support this bill, because I believe it to be a part of the necessary machinery which can save that little fellow, born a Canadian, and thousands of others like him from ever going through what his father and his uncles have gone through". Later in the same speech when Borden was accused of having promised never to introduce conscription, Clark poured forth the loyalty of his soul: "I am grateful, Sir, that he is greater in his gifts of patriotism than in his gifts of prophecy".

On another occasion in speaking on Sir Wilfrid's amendment calling for a plebiscite, Clark the Imperialist spoke: "I believe in the British lion, and I believe in the lion breeding cubs; I do not believe in the rôle of the jackal for Canada. They are breeding full blooded cubs in Australia and we will breed them here too. There is nothing but defeat awaits this scheme. Take it to the Canadian people and begin by telling them: 'You are not a nation' and end by telling them 'You cannot fight!' and they will say: 'Take it away; we do not own it; it does not belong to us; it is a corpse; by this time it stinketh'."

Mr. Sam Charters has written that Dr. Clark's speech in the House "for eloquence and power equalled any effort made in those eventful days, and did much in influencing other followers to forsake their old chief. . . ." He refused a seat in the Union Government.

Then followed in rapid succession the sad parts of the story of Dr. Clark's life. The Union Government rapidly headed toward the recompense that comes to all war governments —ingratitude, carping criticism, widespread fault-finding, increasing hostility and ultimate decapitation. Before this end came Dr. Clark cast his lot with the Western Progressives headed by Hon. T. A. Crerar who had deserted the Union fold. Then followed "the unkindest cut of all" when the U.F.A. Convention in 1921 at Red Deer ignored its debt of gratitude to its great champion of low tariff and then and there dug his political grave and probably hastened his final end. When the U.F.A. promulgated the group idea of government, Clark rebelled: He wrote them: "I have been fighting 'class' for forty years. The House of Lords, the Family Compact, the Manufacturers' Association and the Junkers and Militarists of Germany are each and all examples of group government. Class consciousness is none the less class selfishness . . . because it appears suddenly in Farmer and Labour Parties." He considered it an un-British conception of democratic government and separated himself entirely. Later he accepted a hopeless Liberal nomination in a Saskatchewan constituency and went down before the avalanche of Progressives

that flooded the prairie provinces. Defeated, depressed, dethroned and deserted by his political friends of many years, he found his way back to the old homestead on the Little Red Deer. The thrill that belonged to the floor of the House of Commons and the public platform was gone. "How are things out at the farm, Bob?" someone asked his son. He replied "Ever since the old man failed to get the nomination in Red Deer Riding he has moved the House of Commons out to the farm and us boys are the official opposition and we are getting H— all the time." Yet hanging over his desk at home Lincoln's famous motto was found: "I am not bound to succeed, but I am bound to live up to what light I have. I must stand with anybody that stands right and part with him when he goes wrong." Relentless fate now seemed to dog his footsteps. Two of his sons were taken as a result of their war casualties, and then his wife of a broken heart. One month later Dr. Clark himself passed on. Mr. Adshead has written: "His end was sudden and tragic. . . . In his last days he lost two sons and his wife. The picture of him parading the floor of his house by the river, alone, bereft of sons and wife is a truly pathetic one." He had written to Adshead shortly before: "I have been hard hit in recent years and this last blow is the worst, but God give me courage, I am trying to carry on."

He was human in many ways both as to his virtues and his faults. One illustration only: From his boyhood days at school until his parents passed away, at ripe old ages, he never failed to write them the weekly letter of a dutiful son. And when his mother was on her death bed he hastened from Alberta to her home in England to be with her at the end. Later he did the same in respect to his father. They were humble parents, but they were his and he never failed them.

His son, George, who still carries on at the old homestead, has sent the writer two splendid tributes which he received at the time of his father's death from Sir Robert Borden and from Rt. Hon. R. B. Bennett. He keeps these among his treasures. He also writes his own brief tribute in the following lines: "I revere his memory as a man who was always just and honourable in his dealings with his fellow-men, and who put forward a hard and honest effort throughout his lifetime, from his point of view, to better the conditions of his fellows."

Thus we leave one of Canada's greatest orators, resourceful, versatile, cultured, forceful, magnetic, loyal, true, friendly and very, very human. Twenty years of powerful activity on the floor of the House of Commons and the public platform throughout Canada, brought fame to his name in this, his adopted country, and as fellow Canadians we are justly proud of his attainments; twenty years of modest and successful practice of the medical art in the towns of Belford and Newcastle-on-Tyne in the land of his birth, gave him the human touch and the kindly soul, and as fellow practitioners of medicine we honour his memory—"His faults we write upon the sands of the sea where they may be quickly effaced and forgotten, while his virtues we write upon the tablets of our hearts."

The writer wishes to thank the following for the use of their printed works and of personal communications regarding Dr. Michael Clark: The late H. B. Adshead, John Blue, Hon. W. A. Buchanan, the late W. M. Davidson, ex M.L.A., S. Charters, ex M.P., E. A. Corbett, George Clark, W. M. Dickson, B.A., Hon. R. J. Manion, Hon. E. M. MacDonald, Hon. Duncan Marchall, "Domino" (Masques of Ottawa).

CATECHISM IN MEDICAL HISTORY

By Heber C. Jamieson, M.B., F.R.C.P.(C)

Edmonton

QUESTIONS

1. What common pathological sign of pulmonary disease did Laennec fail to observe?
2. What British novelist paid perhaps the highest tribute ever penned to the physician?
3. What witches brew gave us one of the most valuable drugs of present day Medicine?

ANSWERS

1. The pleural rub. It was called to his attention five years after he wrote his epoch-making book, a study that left little to be added in the descriptions of physical signs in lung disease in over a hundred years.
2. Robert Louis Stevenson.

   "There are men and classes of men that stand above the common herd; the soldier, the sailor, and the shepherd not unfrequently; the artist rarely; rarelier still, the clergyman: the physician almost as a rule. He is the flower (such as it is) of our civilization; and when that stage of man is done with and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Herculean cheerfulness and courage. So it is that he brings air and cheer into the sickroom, and often enough, though not so often as he wishes, brings healing."
3. Digitalis. William Withering (1741-1799) found an old woman who had gained a reputation for curing dropsy with a decoction made from a mixture of some twenty herbs. Curiosity prompted him to investigate. He came to the conclusion that foxglove was the only herb that might be valuable. Trial confirmed his view and so digitalis came to scientific Medicine.

Association Notes

Proposed Revisions of the By-laws

The following proposed revisions of the By-laws will be brought to the attention of General Council at its meeting in the Mount Royal Hotel on June 14 and 15, 1943:—

A—*Chapter VIII, Section 4, paragraph 2*

The President, the President-Elect, the Chairman of the General Council, the Honorary-Treasurer, the General Secretary, the Editor and the Managing Editor shall be members ex-officio of the Executive Committee, but only the elective officers shall have the right to vote.

It is proposed that this section be revised to read:

The President, the President-Elect, the immediate Past-President, the Chairman of General Council, etc.

B—*Chapter VII, Duties of Officers*

It is proposed that, after Section 2, a new Section be inserted to read as follows:

Section 3—Duties of the Immediate Past-President

He shall be a member ex-officio of the Executive Committee for the year immediately succeeding the termination of his Presidency.

Renumber the succeeding paragraphs, starting with *Section 4, Duties of Chairman of General Council.* Add to the end of *Section 1—Duties of the President*, the following sentence:

He shall be a member ex-officio of the Executive Committee for the year immediately succeeding his Presidency.

C—*Chapter VI, Section 2, Paragraph 4(2)*

Each Division's official nomination of one alternate who will act in the absence by reason of death or illness or from cause acceptable to the President, of the member or one of the members representing that Division.

It is proposed that, after the word "members" in the fourth line, the following words be inserted: "of the Executive Committee".

Medical Societies

Section on Tuberculosis of the Montreal Medico-Chirurgical Society

A meeting of this Section was held at the Royal Edward Laurentian Hospital, Montreal, on March 12. The first subject dealt with was that of Pregnancy in Tuberculosis. Dr. H. E. Burke described some of his own experimental work on rabbits done some years ago at Saranac Lake. After showing the results of definite measured infection in these animals, he went on to speak of the effect of pregnancy on the course of tuberculosis in the rabbit, comparing it with the course of the disease in the non-pregnant animal. In a fairly large number of these animals watched over a period of months to years he was unable to find that the bearing of young had any influence on the course of the disease. It was possible, indeed, in one or two instances, for an animal to have several litters even in the presence of very extensive disease. He concluded, therefore, that those animals with tuberculosis which became pregnant lived for just as long as did the non-pregnant tuberculous animals.

Dr. R. Howell followed with a review of the work of several observers, notably Ornstein, Bogan, and Mariette, regarding the relationship of pregnancy to tuberculosis in the human. He felt that the frequently repeated teaching that pulmonary tuberculosis was a bar to child-bearing, was open to criticism. There was much evidence to show that women with even extensive disease could and did bear more than one healthy child with no appreciable effect on the mother's disease. No doubt there were cases in which a pre-existing pulmonary lesion had become worse during or immediately after pregnancy, but there was no proof that this was an inevitable result of the pregnancy. If the mortality in pregnant tuberculous women were to be compared with the mortality that might be expected to occur in non-pregnant tuberculous women it would be found (as had been shown by the various observers quoted) that it was not any greater in the pregnant women.

Further, Dr. Howell pointed out, it was important to know whether these cases of pregnant tuberculous women whose cases had become worse, had received special care. Had they been given extra food and rest during the pregnancy, and, equally important, had they also received special care during the post partum period?

The conclusion reached was that pulmonary tuberculosis should not necessarily be regarded as grounds for advising against child-bearing, much less for early termination of pregnancy, but the sound and emphatic qualification was added that tuberculous women who became pregnant must receive extra rest and food, both before and after delivery. Finally, if the disease was active at the time of birth the child should be immediately removed, within a matter of hours, from contact with the mother.

In the discussion which followed no one could be found to take exception to the views expressed above. Indeed, additional evidence was brought forward to strengthen the conclusions stated. It was generally agreed that we had been too long obsessed with ideas which tended to ascribe to pregnancy an influence on tuberculosis which had not been closely enough investigated.

The second paper was a report by Dr. S. J. Usher of a case of long-standing lupus vulgaris with unusual features. The patient was a Scottish woman whose disease began in the cervical region, in association with an adenitis, and thence had gradually spread over the face and trunk during the last fifteen years. All the known methods of treatment had failed to arrest

its progress. There was an associated apical tuberculous infiltration, and it was interesting to note that neither this lesion nor that on the skin had shown any exacerbation during her three terms of pregnancy. Dr. Usher mentioned that the incidence of lupus vulgaris in Montreal had become extremely low, judging by his experience in the large Skin Clinic at the Montreal General Hospital, where a fresh case of the disease had not been seen in years. Discussion brought out the fact that this low incidence had been noticed by others in the city. It was thought, however, that the disease was to be seen not infrequently in Indians with tuberculosis.

Dr. A. T. Henderson then presented a case of Friedländer's pneumonia. He commented on the tendency of the disease to recur, and on its capacity for destruction of lung tissue. The case reported was under his care in the Royal Victoria Hospital, and showed all the characteristics of the disease. It had now reached the stage where the left apex was heavily infiltrated and eroded. The difficulty in treating the condition was emphasized.

La société médicale des hôpitaux universitaires de Québec

Une séance de la société médicale des hôpitaux universitaires de Québec était tenue à l'Hôtel-Dieu de Québec, vendredi le 5 mars, 1943. Suivent les résumés des travaux présentés à cette occasion.

ATÉLECTASIE PULMONAIRE ET BRONCHO-ASPIRATION DANS LES OPÉRATIONS CHIRURGICALES.—Fernando Hudon.

Dans les complications pulmonaires post-operatoires, l'atélectasie est, dans un grand nombre de cas, la lésion pulmonaire initiale. Les sécrétions amènent l'obstruction bronchique pouvant conduire à la congestion pulmonaire, la broncho-pneumonie ou l'abcès pulmonaire. Pour prévenir cette obstruction bronchique, il faut enlever ces sécrétions avant, pendant et après l'opération, par la toux, les changements de position, la position de Trendelenburg l'aspiration intratrachéale et intra-bronchique avec une sonde urétrale ou sous vision directe avec un bronchoscope.

Au lit du malade, on peut se servir de la technique de Haight qui passe la sonde par voie nasale sans laryngoscope ou encore on peut passer la sonde par la bouche avec un laryngoscope.

Nous avons obtenu de bons résultats et nous sommes d'avis qu'il y a tout intérêt à garder les voies respiratoires absolument libres à la fin d'une intervention chirurgicale et dans les suites opératoires.

UN CAS DE MYCOSIS FONGOÏDE À FORME ÉRYTHRODERMIQUE AVEC FORMULES SANGUINES PSEUDO-LEUCEMIQUES.—Jean Grandbois.

L'auteur, après avoir donné un aperçu succint du mycosis fongoïde et de ses trois grandes formes, rapporte l'observation suivante:

M. L.F., 69 ans, était admis le 3 septembre, 1942, dans le service de dermatologie pour érythème, prurit et desquamation diffuse de la peau. Ces manifestations cutanées, d'abord localisées à la région lombaire, s'étaient généralisées complètement à la suite d'ingestion d'une poudre blance (acide arsénieux). Avant le début de ces troubles, il y a un an et 3 mois, ce monsieur avait toujours eu une bonne santé.

A l'examen, les téguments sont chauds, rouges, secs, légèrement épaissis et desquament en fines lamelles. La rougeur est uniforme, mais prend ça et là une teinte un peu violacée. Une hyperkératose très prononcée est présente aux régions palmaires et plantaires. Les ongles ont une épaisseur d'à peu près un quart de pouce, sont durs, recourbés et effilés à leur extrémité. L'examen des différents appareils est négatif et aucune adénopathie superficielle n'est décelée.

Le diagnostic d'érythrodermie primitive est posé, mais l'apparition d'une adénopathie importante un mois après l'entrée du malade, soulève un nouveau problème: s'agit-il d'une lymphogranulomatose maligne, d'un lymphosarcome, d'un pityriasis rubra de Hebra et Jadassohn, d'une érythrodermie leucémique ou d'un mycosis fongoïde à forme érythrodermique.

Une première formule sanguine: hémoglobine, 90%; globules rouges, 3,992,000; globules blancs, 19,785; polynucléaires, 57%; lymphocytes, 37%.

Des formules successives montrent une leucocytose croissante jusqu'à 48,000 globules blances, et aussi l'apparition de cellules spéciales appelées "monocytes atypiques" qui forment à eux seuls 50% ou 60% de tous les globules blancs.

Un biopsie d'un ganglion pose la possibilité d'un mycosis fongoïde, possibilité qui est ensuite confirmée par une biopsie de la peau.

Le malade fut soumis à 17 séances de téléroentgenthérapie, traitement de choix dans le mycosis fongoïde, mais six mois après son entrée, le malade meurt en état d'asystolie.

L'auteur conclut en disant que: (1) l'érythrodermie chronique primitive même sans espace de peau saine, comme était le cas pour ce malade, doit toujours éveiller la possibilité d'une érythrodermie mycosique; (2) l'hématologie a montré 50% à 60% de "monocytes atypiques", cellules rarement rencontrées dans cette proportion dans les observations de mycosis fongoïde; (3) l'infiltration mycosique siège ici dans le corps capillaire du derme, tandis que ordinairement cette infiltration est plus profonde dans le derme.

EXSTROPHE VÉSICALE.—Arthur Bédard.

Après un rappel de quelques notions sur la pathogénie et le traitement de cette affection, l'auteur rapporte l'observation d'une jeune fille de 17 ans, présentant une exstrophie complète où l'opération de Coffey No. 1, faite en deux temps, a donné un excellent résultat.

L'auteur insiste, en conclusion, sur le choix de l'opération et les soins pré-opératoires et post-opératoires.

PANCRÉATICO-DUODENECTOMIE POUR UN CANCER DE LA TÊTE DU PANCRÉAS.—François Roy.

La chirurgie du pancréas a toujours été très limitée. Depuis que Wipple, Parsons et Mullins ont rapporté, en 1935, l'observation d'un cas de cancer de la tête du pancréas opéré par eux, avec succès, nombreux les chirurgiens qui ont pu publier des séries de quatre, cinq, six opérations pour cette lésion.

Observation.—Mlle E.F., 47 ans, présente un ictère par rétention dû à un cancer développé dans le segment sous papillaire du cholédoque. En un temps, nous enlevons tout le duodénum et la moitié droite du pancréas. Nous anastomosons la vésicule biliaire et l'estomac au jéjunum après avoir ligaturé le cholédoque et la canal de Wirsung. Les suites opératoires sont assez faciles. Neuf jours après l'opération, apparait une fistule pancréatico-biliaire que se ferme le mois suivant. Une diarrhée marquée qui est apparus dès que la malade a commencé à s'alimenter est complètement disparue. Il y a trois mois que la malade a été opérée. Elle se sent très bien, a bon appétit, mange bien et prend depuis un mois environ deux livres de poids par semaine.

Une séance de la société médicale des hôpitaux universitaires de Québec eut lieu à la Crêche Saint-Vincent de Paul, le 19 mars 1943. Suivent les résumés des ouvrages présentés à cet occasion.

DÉCLENCHEMENT MÉDICAMENTEUX DU TRAVAIL.—René Simard.

Le déclenchement purement médicamenteux du travail est préférable à la provocation mécanique de l'accouchement. Il ne favorise pas l'infection ni la dystocie dynamique et il peut se répéter sans inconvénient. Les rares reproches qu'on lui adresse semblent injustifiés. Chaque fois que l'on veut vider l'utérus sans qu'il y ait nécessité de l'évacuer instantènément, on peut recourir avec avantage à cette méthode, qui se montre efficace dans environ 80% des cas. Les échecs ne semblent pas pouvoir s'expliquer simplement par la persistance de l'équilibre hormonal. En somme, le procédé est simple, efficace, inoffensif, et rend de grands services, mais il doit être employé à bon escient et non par simple complaisance.

SOINS À DONNER AUX PRÉMATURÉS ET AUX DÉBILES.—Euclide Déchène.

Les statistiques démographiques fédérales nous indiquent que la prématurité et la débilité constituent le plus grand facteur de mortalité infantile. En général, le médecin n'attache pas assez d'importance à cette cause. Le prématuré et le débile requièrent:

1° Une température constante. Il faut avant tout les réchauffer et les maintenir à une température constante par tous les moyens à notre disposition: vêtements chauds, lit chaud, local chaud. Le transport du débile pour l'Hôpital nécessite une "couveuse portative" ou un "panier à prématuré".

2° Une alimentation adéquate. L'alimentation au sein est l'alimentation de choix. Il faut des raisons sérieuses pour en priver le prématuré et le débile. L'allaitement mixte est très avantageux. A défaut de l'un et de l'autre, les laits modifiés, de préférence écremés, sont à conseiller.

3° De la protection contre les infections. Il s'agit d'augmenter l'immunité de ces petits enfants en leur prodiguant des soins spéciaux, en les préservant de toute infection. La fragilité de ces nouveaux-nés débiles est considérable et les soins qu'ils exigent doivent être attentifs et minutieux. La moindre infection est excessivement grave chez le prématuré et le débile à cause de leur peu de résistance.

ANÉMIE APLASTIQUE D'ORIGINE SEPTIQUE.—Donat Lapointe.

Malgré les progrès de l'hématologie, les cliniciens éprouvent encore des difficultés pour classer les manifestations pathologiques du tissu sanguin.

Un enfant de 2 ans, chez lequel nous remarquons surtout de l'anémie et un syndrôme hémorragique nous fournit l'occasion de passer brièvement en revue la question des anémies aplastiques chez l'enfant.

TYPHOID CARRIER AGED NINETY-SEVEN FOUND.—The State Department of Health of Illinois has found the oldest typhoid carrier ever discovered in that state, according to the *Illinois Health Messenger*. One month after the woman, aged ninety-seven, moved into the home of her daughter, a member of the household died from typhoid. The subsequent investigation disclosed the elderly woman to be a carrier.—*The Diplomate.*

Special Correspondence

The London Letter

(From our own correspondent)

BEVERIDGE AGAIN

No excuse is needed for coming back to the subject of the Beveridge Report for yet a third time in these notes. It really *is* the principal topic of discussion and its implications in the famous "Assumption B" concerning a comprehensive medical service available for all are brought right to the forefront of professional preoccupation by the announcement in the recent debates in Parliament that the medical profession was about to be consulted with a view to getting on with the job of setting up such a service. The Minister of Health has, in fact, begun such consultations and by next month's letter it may be possible to reveal what guiding principles he has in mind.

Meanwhile the Council of the British Medical Association has considered what line to take on a 100% medical service. After much discussion it was decided that provided the proposals of the Beveridge Report as a whole are put into operation the B.M.A. would be willing to cooperate in the preparation of a scheme provided that terms of service are the subject of negotiation and that patients who want to "contract out" so to speak, shall be able to obtain private attention outside the scheme. This is surely a "hedge", for it makes the 100% idea a little less complete and above all it raises the awkward question as to what is really gained from a doctor if you pay for it directly yourself (or owe the fee!) rather than securing your medical advice from a doctor who is paid out of a fund to which you have in some way or other contributed.

The Society of Medical Officers of Health has also been planning and comes out in favour of a national health service for all with a strong central and local administrative group. No final decision is reached on the question of whole-time service for the participating practitioners but it is made clear that every service bearing on their health is to be available to every member of the community without any charge whatever. Meanwhile some are asking what loss of freedom a national or state medical service will entail. Dr. Geoffrey Bourne in a recent issue of the *British Medical Journal* sets out clearly the risks to scientific freedom of thought and action implied in what he calls the autocratic system of medical service as typified by the London County Council and the Ministry of Health's Emergency Medical Service. Free choice of doctor, free choice of patient, and freedom to prescribe whatever treatment seems right no matter what orthodoxy and economy may dictate seem to be the foundations for a democratic system of medical service. The next few months

will indicate whether or not this type is to be the method of the future.

FUTURE OF NURSING

Shortage of nurses, revealed recently in the wartime expansion of beds to deal with casualties, has led belatedly to an inquiry into the conditions of nursing life. The Nurses Salaries Committee under Lord Rushcliffe has issued an interim report in which a national scale of wages is laid down for the first time and it is indicated that other matters of equal if not greater importance such as hours of work, length of holidays and interchangeability of pension rights are to be considered later. The scales proposed are an improvement on many now in existence and they do afford a better future for the higher ranks of the nursing profession. The proposals are not obligatory but it is expected that they will be generally accepted by hospital authorities and are to come into force by April 1.

The question of the nurse in training is not altogether satisfactorily settled. She gets a 96-hour fortnight (when conditions permit!), a month's leave per year, free uniform, lectures in her duty hours and no fees for entrance. Tuberculosis nurses are to be paid on a higher scale. Optional non-residence for trained staff is not encouraged and the position of the married nurse is therefore left in the air. The Government is to pay half of the increase in cost involved in the proposals which are estimated to cost up to £2 million a year.

PASTEURIZATION OF MILK

This subject has cropped up again in a rather unexpected way and it looks as if we are nearer to getting this widely recommended reform at an early date. Briefly what has happened is that the Ministry of Food introduced a scheme of "zoning" designed to save labour and tires, which in effect denies the free choice of milk to many members of the community. Since it is no longer possible to choose safe milk it is obvious that the Food Ministry has become inadvertently a party to the sale of unsafe milk and a strong medical deputation recently went to the Minister, Lord Woolton, to tell him in no uncertain terms what it thought about the situation thus created. The experience gained in Canada was quoted in support of pasteurization and although it will be impossible in wartime to secure either the plant or the labour for wholesale heat-treatment of the country's milk supply it may prove possible to get at least a step forward in the larger towns.

Lord Woolton is rightly praised for his wise handling of our food situation as a whole and there is every hope that he will feel that he cannot let one of the products for which he is now responsible spread disease and death when measures can be adopted to render it safe.

ALAN MONCRIEFF

London, March, 1943.

Canadian Medical War Services

Nutrition Service in the R.C.A.F.

A nutritional section has been in operation in the medical Branch of the R.C.A.F. during the past eighteen months. The purpose of the section is to investigate general nutritional requirements and nutritional requirements under special conditions such as extremes of altitude, cold and glare.

Much time and energy has been directed towards clinical research and problems of nutritional deficiency among R.C.A.F. personnel. However, the organization of the actual feeding of the men and women has also received considerable attention.

The problem of adequate nutrition of any group may be broken down as follows: (1) An adequate ration must be devised. (2) The ration must be made available as required by the stations. (3) The essential foods of the ration must be drawn in their entirety. (4) The foods must be properly cooked to retain taste and nutritional value. (5) The foods must be eaten. Each of these individual stages in the proper feeding of the R.C.A.F. has been reviewed, and revisions made as follows:

1. One of the early steps was to make assays of the vitamin and mineral contents of the ration in its raw state and after cooking. The ration in its raw state was found to contain adequate amounts of minerals and vitamins, but after cooking, it lost large quantities, particularly of vitamin C. These studies demonstrated the need of a nutritional body to review information as obtained and to apply it in a practical way to the ration. A standing committee on nutrition for the Department of National Defence was set up under the chairmanship of Professor Andrew Hunter, University of Toronto, to act in an advisory capacity to the Department of National Defence through the Quartermaster General's Department. On the advice of the committee, the ration was changed to ensure an adequate supply of certain of the nutritional elements in a form which would not be destroyed by cooking.

2. The services of the Royal Canadian Army Service Corps in supplying the ration to both Army and R.C.A.F. stations, have been such that no problems have arisen on this score.

3. Surveys conducted have revealed that not all the stations have been drawing their full quota of essential foods. This problem is being attacked by means of the educational campaign discussed below.

4. The proper cooking and serving of foods in the mess to retain their flavour and nutritional value represented the greatest problem faced by the new branch. In order to ensure that the ration was not ruined by careless handling during preparations in the mess halls,

dietitians were commissioned into the Woman's Division of the R.C.A.F. to supervise all food preparations, organize the messing services, maintain proper cleanliness of staff and equipment, taste and approve all food before serving and cut down on waste. The Messing Division under the direction of Squadron Officer Jeffs has so far created an enviable record. Some 85 graduate dietitians are now in uniform and about 25 more are needed to supply stations where their help is required.

To further the ideal of perfectly prepared food, four nutritional laboratories have been set up across Canada to check on the nutritional value of food as it is served in the mess halls. Undue loss of minerals and vitamins in the preparation of the food is discovered by analyzing specimens of food before and after cooking and steps are taken to correct such loss. A test kitchen and a school of cookery staffed by dietitians work in close conjunction with one of these laboratories. Here the best methods to prepare attractive and tasty food of high nutritional value are being worked out with a view to complete standardization of all recipes for teaching in the cooking school and on R.C.A.F. stations.

5. Surveys conducted have revealed that many service personnel are not eating the foods in their ration which are required for health. In order to impress upon these men and women the necessity of certain of these foods an educational campaign has been begun. A coloured motion picture made by the R.C.A.F. on practical nutrition is being shown to all members of the Service, and is preceded by a lecture by the medical officer on the foods necessary for health. It was felt also that a booklet based on the film would be of great value if distributed to R.C.A.F. personnel immediately after the showing of the film.

The joint committee on nutrition of the Canadian Medical Association and the Life Insurance Companies of Canada, learning of the projected booklet, felt that the booklet which tells the story of nutrition independently from the film would be of interest to all Canadians. Accordingly, permission was obtained from the R.C.A.F. to prepare the booklet in colour and to distribute it, not only to R.C.A.F. personnel but to the civilian population of Canada. The distribution will be under the auspices of the C.M.A. and the Life Insurance Companies of Canada and will commence about May 1, 1943.

MEDICAL OFFICERS APPOINTED TO THE ROYAL CANADIAN NAVAL SERVICE

(Previous list appeared in February 1943 issue)

SECTION II

Name *Address*	*Date of Entry*
Bateman, R. G., Thomasburg	9-2-43
Bell, R. D., Toronto	23-1-43
Bouchard, J. J. L., Montreal	10-2-43
Coady, B. K., Armadale, Halifax Co.	2-2-43
Donnelly, T. G., Ottawa	9-3-43
Fitzgerald, J. L., Toronto	8-2-43
Florendine, D. G., Calgary, Alta.	1-2-43
Fraser, W. R., Lacombe, Alta.	9-3-43
Hall, A. D., Baltimore, Maryland, U.S.A.	22-3-43
Henderson, H. M., Halifax	23-2-43
Lockwood, T. M., Westmount Que.	4-3-43
Macdonald, E. S., Toronto	15-3-43
McDougall, H. A., Montreal	4-3-43
Malone, M. C., International Falls., Minn., U.S.A.	8-2-43
Murphy, R. J. F., Halifax	11-2-43
Ross, H. B., Halifax	2-3-43
Routledge, J. H., Montreal	4-3-43
Smith, R. A., Calgary, Alta.	1-2-43
Tanton, C. W., Montreal	15-3-43
Taylor, N. B. G., Toronto	23-1-43
Wallace, H. M., North Bay, Ont.	8-2-43
Welch, R. H., Toronto	3-2-43
Wesley, R. H., Toronto	23-1-43
Whitley, D. M., Winnipeg	5-2-43

MEDICAL OFFICERS APPOINTED TO THE R.C.A.M.C. — ACTIVE FORCE FEBRUARY and MARCH, 1943

(Previous sections appeared in the February and March 1943 issues)

SECTION VII

Name *Address*	*Date of Appointment*
Angers, B., Chicoutimi, Que.	19-2-43
Arsenault, J. R., Quebec	9-2-43
Bailey, C. M., Montreal	22-3-43
Baker, A. A., Weston, Ont.	15-2-43
Beaudet, A., Shawinigan Falls, Que.	15-3-43
Beckwith, C. J. W., Sydney, N.S.	13-3-43
Bennett, S. R., Toronto	2-2-43
Birks, R. S., Montreal	19-2-43
Blaisdell, J. L., Timmins, Ont.	9-1-43
Blumenfeld, E. A., Montreal	24-2-43
Bourque, H., Ottawa	9-2-43
Brunton, L., Montreal	22-2-43
Campbell, K. A., Vancouver	19-2-43
Caron, J., Sorel, Que.	9-2-43
Carson, G. D., Vulcan, Alta.	13-1-43
Cantelon, G. W., Windsor, Ont.	22-2-43
Cawthorpe, J. F., Tavistock, Ont.	1-1-43
Chamberlin, J. H., Winnipeg	2-1-32
Christensen, H. F., Standard, Alta.	22-12-42
Cleghorn, R. A., Toronto	5-3-43
Colthart, J. M., Toronto	1-1-43
Cooperberg, A. A., Outremont, Que.	12-2-43
Corson, J. A., Toronto	24-1-43
Craig, C. G., Olds, Alta.	15-2-43
Creighton, S. A., Vancouver	20-3-43
Dandenault, J.-Y., Coaticook, Stanstead Co., Que.	9-2-43
Davies, W. F. A., Ottawa	19-2-43
D'Eon, B., Quebec	9-2-43
Delaney, W. L., Quebec	12-2-43
Demers, A., Cap de la Madeleine, Que.	9-2-43
Dickson, L. C., Toronto	13-2-43
Doerr, R. S., Toronto	5-2-43
Dougan, A. A., Harvey Station, N.B.	
Duncan, H. A. G., Montreal	1-3-43
Eisen, S. M., Toronto	21-1-43
Elliott, A. J. K., Olds, Alta.	15-2-43

Name	Address	Date of Appointment
Farrell, H. S.,	Montreal	12-2-43
Fedder, J.,	Toronto	11-2-43
Ferron, C.,	Grand'Mere, Que.	9-2-43
Fowler, J. R.,	Edmonton, Alta.	8-2-43
Fulton, A. P.,	Truro, N.S.	19-2-43
Gauthier, C.,	St. Joseph d'Alma, Que.	19-2-43
Gauthier, R.,	St. Gregoire, Que.	9-2-43
Gelinas, G.,	Trois Rivieres, Que.	9-2-43
George, F. H.,	Saint John, N.B.	31-12-42
Gibson, J. D.,	Kingston, Ont.	26-12-42
Gold, A.,	Montreal	12-2-43
Grondin, L.,	St. Maurice, Champlain Co., Que.	9-2-43
Guadagni, N. P.,	Westboro, Ont.	19-2-43
Guilmette, C.,	Quebec	9-2-43
Harrigan, E. R.,	Sydney, N.S.	31-12-42
Harris, R. I.,	Toronto	12-3-43
Harvey, L. B.,	Worcester, Mass.	8-3-43
Hawthorne, K. O.,	Montreal	8-2-43
Ingram, R. F.,	Campbellton, N.B.	31-12-42
Kirkbridge, R. A.,	Montreal	1-3-43
Krauser, W. G.,	Montreal	13-2-43
Laing, W. A. R.,	Westmount, Que.	12-2-43
Law, D. T.,	Ottawa	9-2-43
Law, W. B.,	Ottawa	11-1-43
Leclerc, G.,	Ottawa, Ont.	22-2-43
Leonard, J.,	Prescott, Ont.	16-1-43
Lerman, S. I.,	Montreal	5-2-43
Levine, B. P.,	Montreal	
Levine, R. M.,	Montreal	12-2-43
Levy, I.,	Toronto	18-2-43
Lewis, R. A.,	Montreal	19-2-43
Light, W.,	Montreal	15-2-43
Locke, J. C.,	Westmount, Que.	12-2-43
Loudoun, J. R.,	Guelph, Ont.	22-2-43
Lugsdin, G. H.,	Toronto	5-3-43
MacCormick, J. A.,	Halifax	31-12-42
Macdonald, F. S.,	Saskatoon, Sask.	8-3-43
Macdonald, G. F.,	Antigonish, N.S.	19-2-43
Macdonald, N.,	Windsor, Ont.	17-3-43
Macintosh, R. A.,	Andover, N.B.	19-2-43
Maclennan, D. A.,	Campbellton, N.B.	31-10-42
Macmillan, F. A.,	Charlottetown, P.E.I.	19-2-43
Macphail, F. L.,	Montreal	1-1-43
Macrae, F. R.,	Montreal	12-2-43
Macrae, H. M.,	Toronto	1-2-43
Maikin, E.,	Parry Sound, Ont.	4-3-43
Maloney, J. H.,	Barachois, Que.	22-3-43
Maus, J. H.,	Ayr, Ont.	22-2-43
McConnell, F. L.,	Longueil, Que.	19-2-43
McFetridge, J. D.,	Middle Musquodoboit, N.S.	31-12-42
McKenzie, A. D.,	Kelowna, B.C.	26-2-43
McLaren, A. G.,	Viking, Alta.	22-12-42
McMahen, W. J.,	Innisfail, Alta.	15-2-43
Megas, C.,	Edmonton	1-3-43
Mellow, R. C.,	New Toronto, Ont.	18-1-43
Merritt, R. I.,	Toronto	14-1-43
Miller, J. C.,	Mastai, Que.	22-3-43
Mitchell, L. I.,	Workworth, Ont.	1-1-43
Miville/Dechene, G.,	Quebec	9-2-43
Moyle, A. H.,	Hawkesbury, Ont.	19-2-43
Murphy, D. R.,	Montreal	12-2-43
Nancekivell, A. F.,	Montreal	19-2-43
O'Neill, J.,	Pont de Quebec, Que.	9-2-43
Oswald, J. R.,	St. Catharines, Ont.	11-3-43
Owen, H. F.,	Montreal	12-2-43
Patterson, L. J.,	Prescott, Ont.	16-1-43
Peat, R. S.,	Kingston, Ont.	8-2-43
Peterson, E. W.,	Montreal	26-2-43
Playfair, F. D.,	Hamilton, Ont.	19-2-43
Pollak, J. E.,	Prescott, Ont.	21-1-43
Price, I. C.,	Fredericton Jct., N.B.	31-12-42
Pritchett, N. G.,	Cambo, Nfld.	18-1-43
Rabinovitch, R. D.,	Montreal	19-2-43
Rance, C. P.,	Toronto	28-1-43
Reid, E. A. S.,	Westmount, Que.	12-2-43
Rice, W. C.,	Sydney, N.S.	19-2-43
Roberts, C. A.,		31-12-42
Robinson, H. S.,	Banff, Alta.	19-2-43
Robitaille, J.-C.,	Quebec	25-1-43
Rodrigue, G.,	Compton, Compton Co., Que.	9-2-43
Rogers, J. R.,	Ingersoll, Ont.	22-2-43
Rose, P. B.,	Edmonton	8-3-43
Rosen, E. J.,	Outremont, Que.	12-2-43
Roy, J.,	Pike River, Que.	9-2-43
Ruddick, D. W.,	Morin Heights, Que.	19-2-43
Ruttle, L. D.,	London, Ont.	1-3-43
Sabourin, G.,	St. Jean Baptiste, Man.	9-2-43
Samson, G.-A.,	Charny, Que.	9-2-43
Segal, J. R.,	Winnipeg	27-1-43
Segall, S.,	Outremont, Que.	12-2-43
Sheps, J. G.,	Winnipeg	17-2-43
Shuman, B.,	Ottawa	21-1-43
Silverstein, H.,	Toronto	2-3-43
Sniderman, S.,	Hamilton, Ont.	8-2-43
Spittel, W. H.,	Toronto	10-2-43
Stevenson, J. A. F.,	Montreal	12-2-43
Streets, C. W.,	Fort Erie N., Ont.	23-3-43
Tabah, E. J.,	Outremont, Que.	12-2-43
Tanguay, F.,	Sherbrooke, Que.	9-2-43
Telford, D.,	Vancouver	1-4-43
Telford, K. M.,	Vancouver	13-3-43
Thompson, J. A. D.,	Edmonton, Alta.	1-2-43
Turcot, R.,	Neuville, Portneuf Co., Que.	9-2-43
Vigneault, M.,	St. Gregoire, Que.	9-2-43
Vogel, M. J.,	Drumheller, Alta.	21-1-43
Voyer, V.,	St. Alexandre, Kamouraska Co., Que.	9-2-43
Walsh, G. C.,	Vancouver	19-2-43
Walters, J. A.,	Toronto	25-1-43
Waugh, D. O. W.,	Winnipeg	19-2-43
White, C. A.,	Bourlamaque, Que.	6-1-43
Wilson, D. R.,	Saskatoon, Sask.	1-1-43
Woodrow, W. A.,	Lindsay, Ont.	
Wright, A. R.,	Hamilton, Ont.	22-2-43
Zaritsky, M.,	St. Catharines, Ont.	2-3-43

MEDICAL OFFICERS STRUCK OFF STRENGTH OF THE R.C.A.M.C.—ACTIVE FORCE

FEBRUARY and MARCH, 1943

SECTION VIII

Name	Address	Date struck off strength
Demers, P. A.,	Montreal	10-2-43
Dinberg, M. C.,	Canton, N.Y.	8-2-43
Edmison, H. McM.,	Winnipeg	22-1-43
Graham, E. R.,	Luseland, Sask.	15-3-43
Hvland, H. H.,	Weston, Ont.	27-1-43
Kenning, G. C.,	Victoria, B.C.	5-3-43
Moffatt, W.,	Toronto	25-2-43
Paradis, P.,	Quebec	11-2-43
Tyrer, E. R.,	Barrie, Ont.	10-3-43

University Notes

University of Manitoba

A special convocation of the University of Manitoba was held in the Winnipeg Auditorium on March 24 to confer degrees on a graduating class of fifty young men and women of whom 80% were in uniform.

President Sidney E. Smith stated that the special convocation was held in March instead of May because the medical course had been accelerated and tuition given for eleven months of the year in place of eight. This had been made possible by the provision of loans from the Dominion and Provincial governments and from the Kellogg Foundation. These loans were available to second and third year students; fourth and fifth year students, if medically fit, enlisted as privates in the R.C.A.M.C. and received pay of that rank.

Departmental bronze medals were presented to the following undergraduates: Third year Pathology: John W. Bawden. Second year Anatomy: William Karlinsky. Second year Bacteriology: John O'Keefe. Second year Biochemistry: William Karlinsky. Second year Physiology: William Karlinsky.

The graduating class was presented to the chancellor, Dr. Dafoe, by Dean A. T. Mathers, of the medical faculty, and the degree of Doctor of Medicine conferred.

The university gold medal for highest standing with honours at the fourth year examination was presented to Maurice Victor by Dr. Dafoe. Maurice Victor also received the Manitoba Medical Association medal for the highest standing with honours on the aggregate of the first four years of the course, from Dr. D. C. Aikenhead, vice-president of the Manitoba Medical Association, and the Chown prize in Medicine, a gold medal and $50.00 for the highest standing in the second, third and fourth years. The latter presentation was made by Dr. Bruce Chown. Rhonda M. Boughton was presented with the Dr. Charlotte W. Ross gold medal, sponsored by the Medical Faculty Women's Club, for the highest standing in obstetrics. The award was made by Mrs. Gordon Chown, president of the Medical Faculty Women's Club. The Chown prize in Surgery for the highest standing in surgery of the third and fourth year, a gold medal and $50.00, was presented to Robert Walker MacNeil by Dr. Bruce Chown.

The honorary LL.D. degree of the University was conferred by Dr. J. W. Dafoe, Chancellor, on Dr. A. E. Archer, President of the Canadian Medical Association. Dr. Archer addressed the graduands. Giving particular mention to those students in uniform, who formed the bulk of the class, Dr. Archer pointed out that 3,127 of the 9,518 doctors registered in July, 1940, were now in branches of the services. Of these 900 were overseas. He referred to outstanding work that had been done under the control of the National Research Council. When peace comes again, he said, we ought not to be in the position of having difficulty in obtaining money for research. Research should be stimulated, not starved.

ROSS MITCHELL

Abstracts from Current Literature

Medicine

Sulfadiazine: Further Clinical Studies of its Efficacy and Toxic Effects in 460 Patients. Finland, M., Peterson, O. L. and Goodwin, R. A.: *Ann. Int. Med.*, 1942, **17**: 920.

The results of treatment with sulfadiazine in 460 patients with a variety of infections are presented. The earlier conclusions concerning the efficacy and the toxicity of sulfadiazine have been confirmed and extended. In particular, the additional data presented suggest that sulfadiazine may be accepted as the drug of choice in all cases of hæmolytic streptococcic infections and in all the various acute bacterial meningitides.

The accumulated clinical results in the cases of acute gonococcal and staphylococcal infections and in the acute infections of the urinary tract suggest that the efficacy of sulfadiazine is probably similar to that of sulfathiazole. Because of its lower toxicity, however, sulfadiazine may be considered to be the drug of choice, particularly when prolonged therapy is desirable.

The results seem to justify the claim for sulfadiazine as the drug of choice for initiating chemotherapy in all cases of acute pulmonary infections and for continuing treatment in such cases when they are caused by pneumococcus, streptococcus, and probably also staphylococcus and Friedländer's bacillus.

Toxic effects attributable to sulfadiazine were relatively few and mild. They included complications in the urinary tract, agranulocytosis and episcleritis; but in this group of cases no rashes or febrile reactions occurred, although they have been reported by other investigators.

S. R. TOWNSEND

Studies of the B Vitamins in the Human Subject. VI. Failure of Riboflavin Therapy in Patients with the accepted Picture of Riboflavin Deficiency. Machella, T. F. and McDonald, P. R.: *Am. J. M. Sc.*, 1943, **205**: 214.

The authors have studied 20 cases of the so-called ariboflavinosis, presenting outspoken clinical evidence of the deficiency in the form of lesions of the lips, cornea and tongue. These lesions include cheilosis, a seborrhœic type of dermatitis found in the nasolabial folds and in the vestibule of the nose and ears, a superficial vascularizing keratitis, and a specific form of glossitis. This glossitis is characterized by a purple-red or magenta colour of the tongue and by enlargement or flattening of its filiform papillæ. In the treatment of these patients riboflavin was administered in adequate dosage, and its absorption confirmed by finding the characteristic fluorescence in the urine exposed to ultraviolet light. The potency of the preparation was tested by its effectiveness in preventing alopecia in rats maintained on a B complex deficient diet. The results were so inconclusive as to cast doubt upon the validity of the syndrome considered to be due to ariboflavinosis.

E. S. MILLS

Surgery

Fatal Phosphorus Poisoning from an Explosive Bullet. Blaxland, A. J.: *Brit. M. J.*, 1942, **5**: 664.

It is well recognized that incendiary bombs of a certain type contain enough phosphorus to cause local damage to tissues, but apparently they are not regarded as a likely source of phosphorus poisoning. In addition to these bombs however, it is now known that in air fighting the Germans use an explosive bullet containing not only high explosive but about 3¼ gr. of phosphorus. These bullets have been found in wrecked German planes.

In the case herein reported a Canadian airman navigator was wounded in air fighting. On landing and being taken to hospital he was found to have an entrance wound in the left thigh, and x-ray showed a ragged piece of bullet in the abdomen. This was removed and torn vessels were ligated. The thigh wound was cleaned out and phosphorus vapour was seen and smelt in that area. For a couple of days the patient's condition improved, but anuria developed and he died of uræmia six days after receiving his wound.

Postmortem examination showed liver lesions typical of phosphorus poisoning. The kidneys showed acute nephritic changes, with necrosis in some areas, but it was not felt that these were enough to account for the anuria.

The question was raised as to what more could have been done at operation to prevent the absorption of the phosphorus, but evidently the laceration of the tissues produced by the explosion of the bullet in the thigh was so extensive as to make complete cleansing of the track not feasible. H. E. MACDERMOT

Tuberculosis of the Female Genital Organs. "Tuberculose des organes génitaux féminins". Auerbach, O.: *Surg., Gyn. & Obst.*, 1942, **75**: 712.

Faute d'examens microscopiques réguliers à l'autopsie, ce domaine de la tuberculose génitale a été assez peu étudié. L'auteur présente 52 cas, sur 571 autopsies consécutives, dont les âges varient entre 2 et 56 ans et dont il discute la pathogénie. L'indice de tuberculose des organes génitaux féminins, pour cette série, est de 9.1%. Les trompes donnent 94.2% des cas; l'utérus 55.7%; les ovaires 28%; le vagin 3.8%.

La tuberculose des trompes fut propagée, dans tous les cas présentés, par voie sanguine d'un organe extra-pulmonaire atteint au à la suite d'une tuberculose pulmonaire chronique. La forme, les dimensions des trompes ne furent pas modifiées durant la période primaire, mais il y eut hypertrophie et ramollissement par la suite. L'adhérence des trompes aux structures avoisinantes provoque, dans un certain nombre de cas, une péritonite tuberculeuse. Vingt-six sur 29 cas de tuberculose utérine furent provoqués par une extension intra-canaliculaire des trompes, le processus décroissant d'intensité du fond utérin vers le col utérin. La grosseur et la forme de l'utérus furent rarement modifiées, même en période extensive. Le plus souvent, l'endomètre seul fut atteint. Dans tous les cas de tuberculose ovarienne, les deux ovaires furent atteints, contamination consécutive à des lésions tuberculeuses para-ovariennes. Le vagin fut infecté par les trompes et l'utérus, et révéla la présence d'ulcères et de nodules tuberculeux. PIERRE SMITH

Gastro-ileostomy and Gastro-ileal Ulcer. Smith, L. A. and Rivers, A. B.: *Surg., Gyn. & Obst.*, 1943, **76**: 110.

This article presents 8 cases of gastro-ileostomy, bringing the total of reported cases to 23. These eight cases, for symptoms indicative of peptic ulcer, had at some previous date been operated upon, and the surgeon had mistaken a loop of ileum for an upper jejunal loop. In one case the junction between stomach and the small bowel was only 6 inches from the ileocæcal junction and in another was only 4 inches from this point!

A fairly definite syndrome follows such a mistake in operative technique. Diarrhœa usually begins soon after operation and usually continues for years. Food can be recognized in the stool a few hours after ingestion. Vomiting occurs at intervals, occasionally fæcal in quality. Loss of weight is usually severe, although the patient may get about for several years. Some form of abdominal pain is in the history. X-rays after a barium meal clearly demonstrate the condition.

Operation to undo the gastro-ileal stoma, sometimes followed by a proper gastro-jejunostomy, produced satisfactory relief of symptoms. J. R. LACROIX

Treatment of Burns with Chemotherapeutic Membranes. Andrus, N. DeW. *et al.*: *Arch. Surg.*, 1943, **46**: 1.

In this article the authors deal with the local treatment of second-degree burns, in which by definition the epidermis is not completely destroyed, but in which the lesion may involve all the superficial layers down to the stratum germinativum from which the mature epithelium originates.

The method they employed was as follows: Hydrated films were prepared from a hydrophilic cellulose derivative in which the various chemotherapeutic agents were incorporated. These transparent, thin, light and tough films have the useful property (due to the hydrophilic nature of the plastic employed) of becoming pliable when placed in contact with the moist surface of a burn, and of following intimately its delicate contours. Moreover, they adhere closely, remain transparent, permitting observation of the healing process beneath it, and are easily removable by simply sponging with water. A second or third film can be applied, if the first threatens to disintegrate.

In medicating these films the authors have availed themselves of the latest findings in the field of chemotherapy. They made observations indicating that azo-chloramid may inactivate inhibitors of the action of sulfonamide compounds. They used this principle to advantage in their work. Also, the recent findings that the effectiveness of sulfanilamide can be stepped up to nearly equal that of sulfathiazole or sulfadiazine, by adjusting the pH to a slightly alkaline reaction were utilized, and thus full advantage taken of the greater solubility of sulfanilamide compared with that of the other sulfonamide compounds.

The authors record the excellent results obtained in ten patients with second degree burns.

G. E. LEARMONTH

Obstetrics and Gynæcology

Cæsarean Section in Dystocia. Higgins, L. G.: *Brit. M. J.*, 1943, **1**: 212.

It is no longer possible to justify the general use of the high incision, and statistics based upon this operation do not represent the best results obtainable. A personal series of 220 cases of Cæsarean section by the lower segment technique is reported and briefly analyzed. A consideration of this and other reported series suggests that the maternal mortality rate in this operation should not exceed 1 in 300.

The consequences of forceps delivery are considered and the unsatisfactory results for mother and baby are pointed out. In view of the encouraging results of Cæsarean section, the legitimate indications for forceps delivery require careful review.

The outlook towards Cæsarean section should be completely readjusted, and the operation must be used much more freely in serious dystocia to avoid the maternal and fetal morbidity often reported.

ROSS MITCHELL

The Treatment of Disproportion Associated with a Moderate or Slight Degree of Pelvic Contraction in Primiparæ. Barnett, V. H.: *J. Obst. & Gyn. Brit. Emp.*, 1942, **49**: 524.

The advantages of trial labour in the treatment of moderate or slight pelvic contraction in primiparous patients, are: (1) trial labour avoids unnecessary induction which may possibly be followed by hæmor-

rhage or sepsis. (2) It avoids the risk of premature delivery with consequent high stillbirth and neonatal death rate, especially if the forceps have to be used.

The disadvantages of trial labour, in pelvic contraction of moderate or slight degree, in a primiparous patient, are: (1) the psychological effect upon the mother of the death of her first baby after a long and distressing labour; (2) the high Cæsarean section rate and, in some cases, the performance of what might be unnecessary Cæsarean section.

It is probable that an improvement upon the induction results of the past would be obtainable: (*a*) by x-ray pelvimetry, added to the clinical estimation of pelvic contraction; (*b*) by the use of the Drew-Smythe catheter in the performance of the induction.

Induction of premature labour should be performed at or after the 36th week when clinical and radiological investigations show pelvic contraction with first degree of disproportion.

Treatment by trial labour is indicated when pelvic contraction, but no disproportion, is present; or when there is suspected disproportion, but pelvic contraction cannot be demonstrated. Treatment by elective Cæsarean section should be reserved for those cases of contracted pelvis in which second, or greater, degree of disproportion is present. P. J. KEARNS

The Possible Etiologic Rôle of Gynæcologic Lesions in the Production of Hypertension. Everett, H. S. and Scott, R. B.: *Am. J. Obst. & Gyn.*, 1942, **44**: 1010.

The authors conclude that arterial hypertension occurs with greater frequency in patients suffering from various types of large pelvic masses and from uterine prolapse than it does generally in women of similar age. In such a group the hypertension probably results frequently from interference with normal ureteral drainage caused by the gynæcological lesion in question. The therapy of such gynæcological lesions should be of a type tending to relieve as completely as possible such interference with ureteral drainage; namely, surgical removal of the pelvic masses and adequate repair of uterine prolapse. Such therapy should not be delayed too long merely because of the absence of marked symptoms on the part of the patient. ROSS MITCHELL

Pædiatrics

Vitamin K in Hæmorrhagic Disease of the Newborn Infant. Snelling, C. E. with the technical assistance of Nelson, W.: *J. Pæd.*, 1943, **22**: 77.

The author has shown in a previous report that hæmorrhagic disease of the newborn is associated with a low plasma prothrombin and can be cured by the administration of synthetic vitamin K by mouth or intravenously. It was also found that a number of newborn infants had a low prothrombin at birth and this could be prevented by giving vitamin K by mouth to mothers in daily doses for a period before delivery. In this respect an attempt was made to see how near delivery the vitamin K could be given and still be effective. The synthetic vitamin K was given by mouth in 5 mgm. doses to mothers after labour had commenced, at least 4 hours before delivery. This was found to prevent extreme degrees of hypoprothrombinæmia at births and during the first ten days of life. It will also prevent hæmorrhagic disease. Hypoprothrombinæmia in untreated infants was found to have a seasonal incidence, being much more frequent in February and March. The diets of the mothers bore no relation to the low prothrombin of the infant. Ten cases of newborn infants with hæmorrhagic disease were successfully treated with intramuscular injections of 2 mgm. of vitamin K. When given early, before much blood is lost, transfusion is unnecessary. If the hæmoglobin is low, both vitamin K and a transfusion are required.

In the author's experience, vitamin K has done away with the necessity of a second transfusion.

S. J. USHER

Age as a Factor in the Susceptibility of Young Workers to Toxic Substances. Schmidt, W.: *J. Pæd.*, 1943, **22**: 121.

During a war such as this many young persons enter occupations which ordinarily are filled by adult workers, particularly boys and girls 16 and 17 years of age. Protection of these young workers is accepted as a responsibility of government. (1) Occupations particularly hazardous for adults are also particularly hazardous for minors, and (2) certain occupations in which adults may work with reasonable safety may in fact be particularly hazardous or detrimental to the health of young workers. The second principle give rise to the question of the relative susceptibility of immature individuals to industrial poisons. There is only indirect evidence bearing upon the problem. Pulmonary ventilation and cardiac output is greater and the mechanism of detoxification of some toxic compounds is relatively less effective in the growing individual. Impairment of growth may also result and lack of mature judgment renders young persons more likely to neglect the use of personal protective measures and observance of other necessary safe practices. For all the above reasons, persons under 18 years of age should be excluded from occupations in which there is exposure to toxic substances.

S. J. USHER

Urology

Castration for Carcinoma of the Prostate. (1) A report of the immediate results. Alyea, E. P. and Henderson, A. T.: *J. Urology*, 1942, **48**: 673.

In these papers and in the discussion which followed their presentation at the annual meeting of the American Urological Association in June, 1942, the present status of the palliative treatment of carcinoma of the prostate, which has been so much discussed for the past two years, is well outlined.

Alyea and Henderson review the results of treatment of 40 cases of prostatic carcinoma in the preceding year with no attempt to foretell the course of these cases in the year to come. The general condition of 26 patients was fairly good. Fourteen were emaciated and appeared in the last stages of carcinomatosis. After castration the general improvement of the latter group was remarkable, with gain of many pounds in weight, improvement in appetite and energy. Eight who had been bedridden and three who could walk only with crutches became able to walk unassisted. Most striking was the relief of severe pain caused by metastases in the spine and lymph nodes. Fourteen patients had no clinical or x-ray signs of metastases but these were castrated "prophylactically" to cause regression of the growth and to delay or prevent development of metastases.

Remarkable changes in the primary growth were observed, namely marked reduction in the size of the prostate, and frequently the gland became so soft that a diagnosis of carcinoma could not be made from rectal examination alone. Four of the 40 cases showed lung metastases, 14 had metastases to the lumbar spine and pelvis, 7 to the pelvis only and 5 to the ribs. The unusually high percentage of pulmonary metastases found is attributed to the taking of routine x-ray films in all cases of prostatic carcinoma. Following castration the evidence of metastases disappeared from the lungs. The bony lesions, also, show x-ray evidence of an attempt at healing with sclerosis and increased density of the bone. FRANK G. MACK

Castration for Carcinoma of the Prostrate. (2) Experiences in the Treatment of Carcinoma of the Prostate with Stilbœstrol and with Castration by the Technique of Intracapsular Orchidectomy. Chute, R., Willetts, A. T. and Gens, J. P.: *J. Urology*, 1942, **48**: 682.

Chute, Willets and Gens report on 27 cases of carcinoma of the prostate treated in the previous ten months. In both these papers the purpose of treat-

ment was to reduce the action of androgens in the body either by surgical castration or by biochemical neutralization with the synthetic œstrogen stilbœstrol, or by a combination of the two methods. In the 27 cases of Chute, Willetts and Gens 26 out of the 27 cases were improved in the same way as those of the series reported by Alyea and Henderson. Four were treated with stilbœstrol only, 2 with castration alone and 21 by a combination of castration and stilbœstrol. No improvement in the x-ray appearance of bony lesions was noted, but relief of pain was marked and very prompt. The method of intra-capsular castration by enucleation of the testicular pulp as described leaves a small mass on each side of the scrotum which is believed to prevent undesirable mental effects upon the patient as the scrotum does not appear empty. Following operation they used stilbœstrol 10 mgm. intramuscularly every day for 5 to 10 days and then 1 mgm. orally three times a day.

These methods are not put forward as curative but as having remarkable palliative effects, sometimes lasting only for a few months, but in some cases referred to in the discussion, there was relief for several years.

FRANK G. MACK

Psychiatry

Aircrew Selection. Mitchell, H. D.: *Am. J. Psychiat.*, 1942, **99**: 354.

The author, who is President of the Medical Reselection Board, R.C.A.F. Station, Trenton, Ontario, emphasizes in this article the need for proper selection of aircrew. He points out that during the last war 50% of the trainees suffered from a neurosis and 90% of the accidents of the graduate pilots were not due to enemy action but to defects in the pilots themselves. To avoid such developments definite examination standards are followed in aircrew selection at the present time. Emphasis is placed on the fact that strict physical and education standards alone are not sufficient for proper selection and that it is necessary to study the personality make-up of the individual and to assess him accordingly. The personality traits or characteristics investigated apart from maturity and discipline are morbid fears, physiological instability, traits of timidity, and unaggressiveness, and other kinds of nervousness and volitional disorders. The conclusions are that the selection of aircrew depends on a battery of tests, the three most important being physical, educational, and psychological, and that the personality of the individual often determines the position in aircrew for which he is best suited.

BARUCH SILVERMAN

Social Data in Psychiatric Casualties in the Armed Services. Simon, A. and Hagan, M.: *Am. J. Psychiat.*, 1942, **99**: 348.

This article deals with a study of 400 psychiatric casualties picked at random, 200 Army, 150 Navy and 50 Marine Corps men admitted to St. Elizabeth's Hospital, Washington, D.C., during the period from January 1, 1941, to January 1, 1942. An attempt was made to note any specific data in the past histories of these psychiatric casualties which might have demonstrated the inadvisability of taking such persons into the Services. The following specific and objective factors were examined. A history of previous mental illness, broken homes, psychosis in the family, education, occupational adjustment, anti-social behaviour and alcoholism. Similar factors were studied in 788 men who received psychiatric examination at various Selective Service Examination Stations. It was found that 72.2% of those patients examined had one or more of these factors in their past histories. These findings led to the conclusion that where there is a history of previous mental illness, broken home, psychosis in the family, arrests and alcoholism in a man being examined for one of the Services it would appear essential to resort to more extended psychiatric inquiry in order to detect those individuals who might become psychiatric casualties.

BARUCH SILVERMAN

Dermatology

Fungus Infections of the Feet Treated with a Camphor-Phenol Mixture. Glenn, W. R. and Hailey, H. E., Medical Corps, U.S. Naval Reserve: *Arch. Derm. & Syph.*, 1943, **47**: 237.

The treatment of fungus infection of the feet was popularized by a prolific writer for the public on medical subjects, one Paul de Kruif, in the *Readers' Digest* in May, 1942. The treatment advocated was the application of a mixture of equal parts of camphor and phenol and was widely used by persons who were, or thought they were, subjects of so-called "athlete's foot". It was also recommended to these patients by numerous medical practitioners.

The authors of this timely paper selected at random 85 naval aviation students suffering from fungus infection of the feet. Only the cases whose symptoms were limited to scaling about the toes were clinically improved, and in these cultural examinations one week after cessation of the treatment showed that the infection was still present. No cures resulted in any cases and in those showing fissuring or vesiculation the condition was aggravated. Three cases developed toxic eruptions of the hands, and in cases where the medicament was also applied to the groins and perianal region it acted as a primary irritant.

D. E. H. CLEVELAND

Pathology and Experimental Medicine

Production of Cirrhosis of the Liver in Rats by Feeding Low Protein, High Fat Diets. Blumberg, H. and Grady, H. G.: *Arch. Path.*, 1942, **34**: 1035.

Blumberg and Grady have produced diffuse nodular cirrhosis of the liver in three strains of albino rats by feeding them a basal diet (sufficient to maintain approximately constant body weight) to which wheat germ oil had been added. Each rat received 3 to 5 c.c. of oil per day for a period of 200 to 400 days. This diet contained 50% fat and 10% protein and had a relatively high caloric value. In control experiments, commercial corn oil, in place of wheat germ oil, also produced cirrhosis. Histologically three stages were observed. A prolonged fatty change which bore no constant relation to the zones of the hepatic lobules constituted the first stage. There followed a qualitatively similar fatty change with a characteristic slight proliferation of fibroblasts and mononuclear cells in portal and perilobular areas. Finally, there appeared diffuse, active fibroblastic proliferation completely disrupting the lobular pattern, enclosing nodules of hepatic cells of variable size and configuration, and showing areas of proliferating bile ducts. In the last stage, it was not possible to judge from the morphological appearances alone whether some hepatic nodules were the result of simple regenerative hyperplasia or represented true hepatomas. These observations on the development of cirrhosis of the liver in experimental animals parallel those of Connor who described prolonged fatty infiltration of the liver leading to cirrhosis in diabetes mellitus and chronic alcoholism in man.

WILFRED E. TORESON

Hygiene and Public Health

Pertussis Immunity with Toxin and Antitoxin. Bullowa, J. G. M., Alterman, J., Katona, N., Scannell, M. and Robinson, A.: *J. Am. M. Ass.*, 1942, **120**: 886.

The authors quote Merrett Roberts to the effect that the exotoxin and the endotoxin of *H. pertussis* are identical and that this toxin is antigenic. In this study 100 children who had not been previously immunized were given pertussis toxoid antigen (600 units once a week for 4 weeks), 35 children were given pertussis vaccine (40 billion bacilli once a week for 4 weeks). Samples of blood were taken before treatment and at one and six months following completion of treatment. These samples indicated that both toxoid and vaccine pro-

duce a rise in neutralizing antitoxic antibody. The usual initial titre was less than 0.3 units and the terminal titre was usually 1 unit per c.c.

Thirty-three children suffering from pertussis were given injections of toxoid. No clinical improvement was noted. Thirty-three children suffering from pertussis were given antitoxin (concentrated rabbit antitoxin). Blood studies of these children indicated a fairly sustained rise in antitoxic titre but no striking therapeutic results were obtained. Twenty-five children exposed to whooping-cough were given pertussis antitoxin. The ages of these children ran from 18 days to 7 years; 17 of them remained in family contact with patients to whom they had been exposed. Only 1 of these 25 contracted the disease. The expected incidence of children under these circumstances is probably 90%.

FRANK G. PEDLEY

Obituaries

Grant Fleming, M.C., M.D., D.P.H., F.R.C.P.(C.). On April 9, after a short illness, Grant Fleming died in the Montreal Neurological Institute. In his death, Canada has lost a man who had already attained the position of leader in his field and who, under normal circumstances, might have maintained the position for many years.

Born in Toronto in 1887, he graduated from the University of Toronto in 1907 at the age of twenty. In 1908, after some graduate study at the University of Toronto, in the Department of Pathology, he entered the Department of Public Health of the City of Toronto as bacteriologist, and retained that post until the outbreak of the war. During the war years, he served first as Battalion Medical Officer to the Fourth Canadian Battalion, during which period he was awarded the Military Cross for gallantry. Later, he acted as Assistant to the Consultant in Hygiene and Sanitation (Canadian Forces) in London. The late Dr. J. A. Amyot was his chief.

At the conclusion of the war, he returned to the Department of Public Health as deputy for the late Dr. C. J. Hastings, and with the exception of one year in Ottawa as Director of the Division of Venereal Disease Control he remained in Toronto until called upon to direct the Montreal Anti-Tuberculosis and General Health League in 1924. His early association with Drs. Hastings and Amyot, both great pioneers in Public Health, had given him a solid and very practical point of view. His vision and common-sense enabled him to develop this training and to apply it in a situation which badly needed common-sense leadership. The organizers of the Montreal Anti-Tuberculosis and General Health League were wiser than they knew when they selected Grant Fleming as director, and the citizens of Montreal can hardly appreciate the benefits which accrued to them from that selection.

The activities of the General Health League culminated in the Health Survey of 1927 which, though it does not bear his name, was fundamentally the idea and the work of Grant Fleming. The manner in which the Health Survey was conducted illustrated well the way in which Fleming worked. Such a survey might easily have led to antagonism and irritation; instead, it created a public demand for better services and, at the same time, it gave support to and obtained the cooperation of the Health Officer, Dr. Boucher, who had been waging a discouraging fight with politics and public indifference. It would perhaps be unfair to credit the Health Survey with all the subsequent improvements in health services in Montreal, but certainly it seems to have acted as the initial stimulus.

In 1927, Fleming came to McGill as Professor of Public Health and Preventive Medicine, which position he still held at the time of his death. His life might well be called "A Tale of Two Cities". He was so identified with both Toronto and Montreal that one could never decide which city he really considered his own. Even in death, both cities shared the honours, for his funeral rites were in Montreal while his ashes are deposited in the family plot in Toronto.

One could fill pages with the activities of Grant Fleming apart from his official duties. His influence on official and voluntary health organizations was prodigious. Internationally, he was a life Fellow of the American Public Health Association and a member of its Governing Council. He served on the Public Health Advisory Committee of the Commonwealth Fund, New York City, and was Consultant in Preventive Medicine to the W. K. Kellogg Foundation, Battle Creek. In the national field he was closely identified with the Canadian Medical Association as Associate Secretary from 1928 to 1936. The innumerable health articles which were sponsored by the Association and syndicated to the press of Canada were his. As Secretary of the Committee on Economics of the Association, he wrote the original report on Health Insurance, most of which still stands. For years he was a staunch supporter of the Canadian Public Health Association, and at the time of his death was its President. He was also closely identified with the National Committee for Mental Hygiene (Canada), and it was he who was largely responsible for the timely "Study of the Distribution of Public Health and Medical Care Services in Canada". In the field of tuberculosis control he served as a director of the Canadian Tuberculosis Association, as a member of the Quebec Provincial Committee for the Prevention of Tuberculosis, and as a director of the Royal Edward-Laurentian Hospital.

In Montreal he was a member of the Board of Health and Honorary Health Adviser of Federated Charities, a position which was honorary in name only, for the local voluntary health agencies seemed to rely almost entirely on him for advice and counsel.

All these connections serve to indicate the broadness of Grant Fleming's interest but they do not convey a conception of his real character. As an administrator, he had an enormous capacity for work without ever appearing to be busy; his ability to handle his fellow-men was outstanding, for he had the rare quality of working *with* people, not *above* them, and one never thought of him as issuing orders. He could grasp the heart of a problem and divest it of non-essentials almost as quickly as it was presented.

His administrative faculties finally and, unfortunately, belatedly, brought about his appointment last November as officer in charge of preventive medicine for the Army. He went to this post with a clear idea of the problem. His experience as medical director of the Bell Telephone Company of Canada had given him a first-hand knowledge of the health problems of adults. To him, the techniques of military hygiene were essentially the same as those of industrial hygiene. The objective of keeping well people well was the same, and although the occupation was war not industry, the people were the same, as were the principles underlying the promotion of their health. On the medical care side, the Royal Canadian Army Medical Corps was to him an experiment in state medicine. State medicine has, on the whole, been unpopular in Canada, but no convincing proof has been available to support this attitude. The Royal Canadian Army Medical Corps seemed to offer a practical field in which to study state medicine and to draw conclusions as to the advantages and disadvantages of the system.

The eagerness with which Grant Fleming prepared to tackle the army problem made all the more poignant his disappointment when illness struck him down. Like all great men, he was never satisfied with what he had accomplished but was constantly looking for new worlds to conquer.

FRANK G. PEDLEY

Dr. H. I. Taylor died at his home in Saint George, N.B., on Saturday, April 10, 1943, after a long period of ill health. He was born in Saint John, July 28, 1862. His education in Saint John was continued at the University of New Brunswick and Edinburgh

University. After completing his medical course at Edinburgh, he practised for a short time in Great Britain and pursued further studies in Europe. Fifty-five years ago, he began his practice in Saint George and during all these years his reputation as a physician has increased as has the number of his friendships. Dr. Taylor interested himself in all the people in his community and all their interests. He served on the School Board and was keenly concerned in all matters of education. He served in the New Brunswick Legislative from 1908 for twenty-seven consecutive years. He served as minister without portfolio in 1917 and in 1925 he was chosen to succeed Dr. W. F. Roberts as Minister of Health. A year later he assumed the portfolio of Labour being the first minister of Labour in New Brunswick. Succeeding Dr. Roberts, as minister of health, he continued the policies laid down by his predecessor and actively worked for better health services in the rural areas.

Dr. Taylor began his career as a country doctor and was proud so to continue. He frequently expressed sorrow at the tendency of young physicians to gravitate to the towns and cities. No one knew better than he the great opportunities for service in the smaller communities. The financial returns were not great but ample for the doctor's tastes. He actually knew by name and background, thousands of people in Charlotte and Saint John counties and many more throughout the province and Eastern Canada proudly claimed him as a friend. He was a great story teller and a collector of curious and interesting facts about the little people as well as the so-called great. He made no enemies, he belittled nobody and always had a good or a kind word for everyone he met.

It will never be known how many of the young people in his community began their progress to success on assistance granted quietly by this big-hearted doctor. Most of this financial aid was never repaid and in truth the doctor did not expect repayment. He was amply gratified when such protégés succeeded as teachers, nurses, mechanics or in a profession.

The memory of this friendly physician will long remain a bright spot in this troubled life to remind us that the day by day doing of ordinary tasks in a kindly way is in itself the measure of a successful man.

A. STANLEY KIRKLAND

Dr. Norman T. Beeman, Kingsville, Ont., died on December 22, 1942. Dr. Beeman was born in 1882 and graduated from the University of Toronto (1910).

Dr. Paul A. Belanger, aged 43, of Montreal, medical superintendent of the St. Jeanne d'Arc Hospital, died suddenly on April 9, 1943. He was a graduate of the University of Montreal (1928).

Dr. Belanger served the hospital for 18 years, starting as chief intern. One year later he became medical assistant and after three years of service in this capacity he was promoted to be chief of medical hospital service in charge of wards. In 1937 he became president of the hospital board and in January, 1943, was made medical superintendent.

Dr. Hamilton Chalmers Cruikshank, Toronto, died on December 25, 1942. He was born in 1888 and was a graduate of Toronto (1919).

Dr. L. Adeline Dupont, of Kapuskasing, Ont., died on April 24, 1942. He was born in 1883 and was a graduate of the University of Montreal (1908).

Dr. Romeo Gareau, of Blind River, Ont., died on July 26, 1942. He was born on July 3, 1906 and was a graduate of Laval (1935).

Captain J. W. A. Greig, R.C.A.M.C., is reported to have died in England on April 6. A native of Seaforth, Ont., Capt. Greig came to Bridgewater in October, 1939, following a two-year post-graduate course in Birmingham, England. He began his practice in association with the late Dr. W. N. Rehfuss and on the latter's death a month later, took over his practice.

In June, 1941, he joined the Army Medical Corps and was posted at Sydney before proceeding overseas in October last. He was a son of Mr. and Mrs. J. W. Greig of Seaforth, Ont., and a graduate in medicine of Toronto University. His wife, the former Miss Margaret Dunn of Port Colborne, Ont., resides in Bridgewater with her two small children, a son Teddy, seven years of age, and his two-year old sister, Lillian. Besides his parents, Dr. Greig also leaves a sister.

Dr. Richard John Hawkey, of Hamilton, Ont., died on March 9, 1943. He was born in 1869 and was a graduate of Jefferson Medical College (1895).

Dr. Robert W. Knechtel died on March 29 at his home in Winnipeg, in his 82nd year. Born at Brussells, Ont., of pioneer parents, he graduated in medicine from Trinity College, Toronto (1891), and practised five years at Ripley, Ont., before taking postgraduate work in London, England. In 1897 he came to Winnipeg, practised there for twenty years, then retired to his farm at Souris where he carried out experimental work in wheat growing. In 1936 he returned to Winnipeg. He is survived by his widow.

Dr. Franklin Orchard Lawrence, of St. Thomas, Ont., died on March 13, 1943. He was born in 1863 and was a graduate of Trinity University (1887).

Dr. Arthur Elgin Lidstone (McGill 1902), died at Springdale, Notre Dame Bay, Newfoundland, on January 17, 1943. He was born in Stirton County, Ontario, in 1877, the son of Rev. Joseph E. Lidstone, formerly of Holbeton, Devon, England. Since 1913 he had practised his profession on the Northern Coast of Newfoundland, one of the most hazardous sections of the island, especially during the winter season. Surviving are his wife, two daughters, and one son.

Dr. William Francis Loucks, late of Campbellford, died at Nicholl's Hospital, Peterborough, in his 82nd year. He is survived by his widow, Isabelle Doak, and one daughter, Mrs. Cyril K. Lech. He was a graduate of McGill University (1887).

Captain Hubert Oberlin Lough, R.C.A.M.C., medical officer for the Royal Canadian Corps of Signals training at Vimy barracks, died in the Kingston military hospital on March 21st after a brief illness. He was 40 years of age and a graduate of McGill University (1928). Born in Ottawa, he practised in Tiverton and Kincardine before joining the army a year ago. Surviving are his widow and twin sons living at Gananoque.

Dr. Donald S. MacIntosh, of Outremont, Que., died in his 57th year on April 11. Dr. MacIntosh, who, in addition to being a general practitioner, specialized in the treatment of diabetes, was a member of the staff of the Royal Victoria Hospital, being attached to the metabolism section of the medical department.

He was born in Ottawa in 1886, but his family shortly afterwards moved to Pictou County, N.S., where he received his early education. He obtained his early academic training at Dalhousie University and then entered the teaching profession.

He was a teacher at the Montreal High School. At the age of 32 he decided to become a physician. He entered McGill in 1918 and obtained honour standing all through his course. In addition to other prizes he won the Sutherland Gold Medal in his third year and in the final year won the prize for highest aggregate in the courses comprising the medical curriculum.

An active man of several interests, Dr. MacIntosh maintained a large farm at Richmond. He was a member of the Canadian Medical Association and of the Montreal Medico-Chirurgical Society.

He is survived by his widow, two sons, one daughter, two sisters and two brothers.

Dr. W. E. Olmsted, Niagara Falls' oldest physician, veteran medical practitioner, who had resided there for forty years, Dr. William Edmund Olmsted died on March 2, 1943, in his eighty-sixth year.

Born in 1858 in Saltfleet, Wentworth County, Dr. Olmsted spent his boyhood in Ancaster, Ont. He was educated in the public schools of Hamilton and the Dundas Wesleyan Institute, under the supervision of Dr. E. B. Ryckman. In 1893, he graduated from the University of Toronto and practised for ten years in Caledonia. For one year he was with his brother, the late Dr. Ingersoll Olmsted at the Hamilton Surgical Hospital and did postgraduate work at the Chicago and the Mayo Clinics.

Dr. Olmsted was a life member of the Ontario Medical Association and a member of the British Medical Society. Having transferred from the St. Andrew's Lodge, No. 2, A.F. and A.M. 62, at Caledonia, Ont., he was a member of the St. Mark's Lodge No. 105, A.F. and A.M., Niagara Falls. He belonged to the Mount Nebo Chapter, R.A.M., I.O.F.; Canadian Order of Foresters, Woodman of the World and the Cataract Lodge, I.O.O.F. No. 103.

For twenty-six years, Dr. Olmsted had been a member of the Niagara Falls Public Library Board and on several occasions was chairman of the Board.

Surviving are his widow, two daughters, and one son; two sisters and nine grandchildren. One son William, was killed at Passchaendale, on October 30, in 1917. Dr. Olmsted was twice married, his first wife, who predeceased him many years ago having been Ellen E. Gurnett Olmsted, formerly of Ancaster.

Dr. Eugene Prud'homme died in April in his 48th year.

After study at St. Charles Seminary, Sherbrooke, and Bourget College, Rigaud, Dr. Prud'homme entered the University of Montreal, graduating in medicine in 1922. He practised professionally until 1935 when he was elected Registrar of the College of Physicians and Surgeons of the Province of Quebec from which position he retired last September because of ill health.

Besides his wife, Dr. Prud'homme is survived by his mother, a daughter, two brothers and two sisters.

Dr. John Joseph Sheahan, Chapleau, Ont., died on October 26, 1942. He was born in 1880 and was a graduate of McGill (1906).

Captain George W. Smith, M.D., C.M., of the United States Army Air Corps, died on March 22, 1943, at Salt Lake City, Utah, after a very brief illness. Dr. Smith was a native of Merigomish, Nova Scotia, and a Dalhousie graduate of 1925. After a year of postgraduate study at the Kentville Sanatorium, he became a health officer with the Nova Scotia Department of Public Health. After two years of service he went to the Royal Victoria Hospital for postgraduate study in surgery, and from there to the Crile Clinic where he had won a fellowship. He was practising in Niagara Falls, N.Y., when he joined the United States Army Air Corps.

Dr. Wilfred Earl Throop, of Frankville, Ont., aged 46, coroner for Leeds County, died suddenly on April 11, at the home of Dr. A. H. Judson in Brockville.

Born near Brockville, in 1896, Dr. Throop graduated in medicine from McGill University (1919). Besides his widow there survive one son, Alan, a student at McGill; two brothers and a sister.

News Items

Alberta

A recent amendment to the Alberta Sterilization Act provides that the Board, if upon examination, finds a person suffering from (*a*) neurosyphilis with deterioration not amounting to psychosis and not responsive to treatment, or (*b*) epilepsy with psychosis or mental deterioration, if unanimous, in the opinion that the exercise of the powers of procreation would result in the transmission to the progeny of any such person of a mental disability or deficiency, may with the patient's consent, direct a surgical operation for his sexual sterilization.

The Municipal Hospitals' Act is now altered to limit free medical services to hospital supporters and their dependents. Other residents of the hospital district would be the responsibility of the municipality in which they reside.

The Chiropractic Act is amended to permit residents of the Province who now hold a diploma from a school of Chiropractic and who are absent from the Province, attending a school of chiropractic at the time the Act was passed, to obtain a license without examination on the payment of a fee of $50.00. The annual registration fee is increased from $10.00 to $15.00. While the original act called for a diploma from a chiropractic school, after an 18 months' course, this particular class will now get in on the basis of a 12 months' course.

The Provincial Government appointed a committee composed of the following members of the Legislature: Hon. Dr. W. W. Cross, Minister of Health, Chairman; Dr. J. L. Robinson, chiropractor; Mr. C. E. Gerhart, pharmacist; Dr. P. M. Campbell, physician, and Mr. D. J. McKinnon, farmer; for the purpose of making an immediate study of the Health Insurance Act of the Federal Government, when such act is announced, and to investigate the effects of such an act upon the tax structure, the people, and the administration of the Province of Alberta. This committee is to meet at the call of the Chair, and present its report to the next session of the Legislature.

The Mothers' Allowance Act extends the age to 16, of all children entitled to allowances, and further provides that if the child reaches 16 during the school term, the allowance may continue, until the end of that term.

The Superannuation Act is amended so that any person already retired on a pension who may be reengaged will not be able to draw a pension at the same time as he is being paid a salary.

The Government has provided for a sum equal to $1,000,000 for post-war reconstruction, and from this sum are taking $500,000 with which to build and equip an up-to-date hospital for tuberculosis on the University campus. This, when completed, will take over the tuberculosis work done in the general hospitals in Edmonton, at the present time.

The annual refresher course organized by the University of Alberta, and the Alberta Division of the Canadian Medical Association, will be held in Edmonton at the University from May 3 to 7, 1943. While arrangements are not complete at this time, the indications are that this will be the best course so far put on. Besides the University staff of lecturers, men from the Universities of Toronto and Manitoba and from the Armed Forces of Canada and the United States will assist in the program. Organized medicine in the Province is paying the expenses so those who attend the course will not have to pay any fee.

Arrangements are being made to hold the annual convention of the Alberta Division of the Canadian Medical Association in Calgary, in September, 1943. The date has not been fixed as yet, but the four Western Provinces are planning their dates in co-operation, so that the officers of the Canadian Medical Association and any clinicians from the East may attend all conventions.

Dr. George Gushue-Taylor, M.B., B.Sc., F.R.C.S., a distinguished graduate of the University of London and world-known leprologist, was a visitor to the University of Alberta recently. He addressed the Academy of Medicine and a large medical student gathering, spontaneously arranged on hearing of the visitor's presence on the campus.

Dr. Gushue-Taylor made a decided hit with the students. With his brilliant record of medical scholarship in the University of London as a background, his wide experience of medical missionary work in Formosa, and world travel as talking material, and his own presence dynamic enough to see him through, his visit will not soon be forgotten. The S.C.M. at the University of Alberta is to be congratulated on arrangements for this visit. Dr. Gushue-Taylor is now in charge of the United Church Hospital at Bonnyville, Alta.

G. E. LEARMONTH

British Columbia

The Osler Dinner of the Vancouver Medical Association was held at the Hotel Vancouver on March 2. It was a tribute to the speaker, Dr. D. E. H. Cleveland that in spite of the stress of circumstances due to war conditions 120 medical men were present. Dr. Cleveland took as his subject, "The fear of skin" and delivered a delightful as well as highly expert address on the attitude of the practitioner of medicine towards diseases of the skin. He felt that too often there was an unreasoning and unreasonable fear of this subject in the mind of the average medical man, and he pleaded for an application in this, as in other medical subjects, of the ordinary laws of reasoning and deduction.

British Columbia was visited recently by Dr. A. E. Archer, President of the Canadian Medical Association. Dr. Archer had hoped to address the Vancouver Medical Association, was was unfortunately unable to do so owing to an encounter with the prevailing enemy, "flu".

There has been a very good response to the request of the Department of National Defence that all medical men under sixty should be categorized by an Army Medical Board, some 110 men have been examined and categorized in British Columbia.

Elections to the Council of the College of Physicians and Surgeons of British Columbia were held this year. In the districts where elections were held Dr. H. H. Milburn, of Vancouver, and Dr. F. M. Bryant, of Victoria, were returned to their former positions, whilst Dr. G. S. Purvis, of New Westminster, is a new member of the Council. Other members who remain in office are as follows: Drs. F. M. Auld, Nelson, Thomas McPherson, Victoria, Osborne Morris, Vernon, Wallace Wilson, Vancouver.

The North Shore Medical Society, at its March meeting, had as guests, Lieut.-Col. W. A. Clarke, Assistant Command Medical Officer, and Dr. M. W. Thomas, Executive Secretary of the College of Physicians and Surgeons.

We regret to announce the recent death of Dr. Charles Eggert, who for some years has been practically retired. He was well known in the Province, having practised in Prince Rupert for many years before coming to Vancouver. His special interest was in pædiatrics.

Dr. H. M. Robertson, of Victoria, who has been ill for some weeks, is now convalescing nicely. Dr. Robertson is a past-president of the Canadian Medical Association.

The restrictions in the sale of alcoholic liquors have given rise to considerable trouble for the medical profession, who in addition to the tremendous increase in reports, letters and certificates entailed by Selective Service Boards, fuel shortages, and other war babies, are now confronted with demands and requests of all sorts for prescriptions for liquor, the value of which as an agent of healing becomes most apparent during times of prohibition and other means of curtailment of sale.

An interesting side-light on the increased costs of living is the information supplied by Dr. A. K. Haywood, Superintendent of the Vancouver General Hospital, regarding the increased cost to the hospital of commodities, largely used or indispensable. A list of comparative prices in 1939 and 1943 is very instructive and informative. Beef, butter, milk, eggs, tea, potatoes, have more than doubled in price, and there is scarely a commodity which has not increased anywhere from 25 to 90%. Not only has the price of such things increased, but the cost of salaries and wages has gone up greatly. The cost of living bonus has given rise to an increase of $100,000 and the introduction of the three-shift system of nursing has added further to the costs of the hospital. These conditions apply to all hospitals in the province and the recent increase in hospital fees throughout the Province has been rendered inevitable by this greatly increased rising in costs.

J. H. MACDERMOT

Manitoba

A 32-bed extension to the Portage-la-Prairie military hospital will be in operation shortly. This will embrace medical facilities for the care of troops stationed at the 100 Canadian army basic training centre, including sick parades, casualties, and examination of incoming and out-going drafts. It is supervised by two medical officers, Capt. Lerner and Capt. Hastings.

ROSS MITCHELL

New Brunswick

Dr. J. R. Nugent, of Saint John, was elected president of the Council of Physicians and Surgeons of New Brunswick at the annual meeting held in Saint John on April 1, 1943. Dr. J. M. Barry was re-elected Registrar-Secretary.

Dr. W. W. White, of Saint John, was re-elected president of the New Brunswick Division of the Saint John Ambulance Association on March 30 at the annual meeting. Other physicians on the executive are Drs. G. B. Peat, M. A. Oulton, W. O. MacDonald, D. C. Malcolm, of Saint John, Drs. C. W. McMillan and J. S. Hynes, of Fredericton, and Dr. R. Myers, of Moncton.

At the annual meeting of the staff of the Saint Joseph's Hospital of Saint John, Dr. A. L. Donovan was elected president of the Medical Board, Dr. V. A. Snow, of Hampton, vice-president and Dr. E. A. Petrie, secretary. At the same hospital, Dr. T. E. Grant was elected president of the Standardization Board and Dr. Lockland McPherson, vice-president.

At the monthly meeting of the Saint John Medical Society, Surgeon-Lieut. Commander J. W. Graham, M.D., D.D.S., M.R.C.P., discussed a paper titled "Concepts of Arthritis". The second paper of the evening was presented by Dr. T. E. Grant, the title of which was "Fluid and Electrolyte Balance". Both papers were most interesting and discussion was free. Lieut. Comm. Graham was a special guest from the Naval Headquarters, Halifax.

Major W. O. MacDonald, R.C.A.M.C., has almost completed his survey for the Canadian Medical Procurement Board. In the course of this survey, he has visited the greater portion of this profession in the province.

Dr. N. Skinner, of Saint John, and Dr. R. D. Roach, of Moncton, are at present doing postgraduate work in New York and Boston.

Dr. G. Skinner has been invited to present a paper on the treatment of varicose veins by the Sydney, N.S. Medical Society.

During the winter the occupancy rate of all hospitals in New Brunswick has been extremely high particularly in the urban centres, where in addition to the increase of civilian demands for hospital services, the armed forces and their dependants have claimed increased space in all seaboard hospitals. This increase in work has been made more difficult by the scarcity of trained or even untrained lay hospital personnel. Nursing service is overburdened due to the above explained increase in work and the large numbers of enlistments in the R.C.A.M.C. and South African Nursing Service. Fortunately, no major epidemics have so far been encountered. The pressure on medical personnel continues to be exacting. Much doubling up on the public ward service has been required due to enlistments in the armed forces.

The Moncton Medical Society at both its regular meetings in February and March was entertained by displays of medical motion pictures. The attendance at these meetings has been satisfactory and interest has been maintained. A. STANLEY KIRKLAND

Nova Scotia

Ever broadening their sphere of action, the Royal Canadian Navy has made another advance in the establishment of a Well Baby Health Service at Halifax. Surgeon Captain D. W. Johnstone, Surgeon Lieut.-Commander C. L. Bacal and Surgeon Lieut. Alan Ross made the plans. They received the approval of the City Health Officer and of the Dalhousie Health Centre, and the fervent blessing of the overworked Halifax Medical Society. They also set an example meriting the study of those interested in the correlation of the efforts of Canadian medical services. The Health Service gives periodic examinations and immunization to the babies of naval officers and ratings alike.

Dr. F. R. Davis, Provincial Minister of Public Health, submitted bills to the local Legislature providing for an increase of $10 a month in old age pensions, and a broadening of the Mothers' Allowance Act to include mothers whose husbands are totally disabled.

From Sydney Mines to the provincial government comes a request for the construction of a tuberculosis annex to Harbour View Hospital.

Dr. A. E. Blackett was again appointed health officer for New Glasgow. Dr. G. Norman McLeod was appointed inspector of milk.

From the seventy-sixth annual report of the Victoria General Hospital, as prepared by Dr. G. A. MacIntosh, superintendent: "Numerous opportunities of securing employment with attractive pay, together with the spirit of restlessness that exists, is steadily increasing the difficulty in securing and maintaining personnel in some of our departments. The future in this regard is far from encouraging unless some efficient stabilizing measures are instituted."

Don't look now, but another banana has appeared in Nova Scotia! The banana is — or was — right here in Cambridge Station, King's County community. It was received by Mrs. F. W. Huestis from her niece, Miss Frances Winchester of the V. O. N. in Montreal.
ARTHUR L. MURPHY

Ontario

Toronto Military Hospital in Chorley Park has recently been enlarged to a capacity of 350 beds. Major Jaimet has been transferred to an overseas unit and is succeeded by Major G. Kenning as O.C. medicine.

Capt. W. B. Charles has been recalled from M.D. 3 and is posted with Hamilton Military Hospital.

Hon. Mr. Kirby, Minister of Health for Ontario, has an ambitious program to present to the legislature at its present sitting. A new centre for cancer treatment and research is proposed, the initial cost of which would be half a million dollars. He also proposes additional hospitals for convalescents and incurables and for the mentally ill. An extension of sanatoria for tuberculosis and the setting up of county health units as part of a scheme to extend preventive methods in public health is also included.

The programs in the sectional meetings of the Academy of Medicine Toronto for March were all of practical interest to the fellows. The high lights were provided by two distinguished visitors. On March 2 Francis Caster Wood, Professor of Cancer Research, Columbia College of Physicians, New York City, spoke on "Surgery versus radiation in the treatment of cancer". On March 11 the section of Preventive Medicine and Hygiene heard Louis Schwartz, Medical Director, Chief of the Dermatoses Investigation Section, National Institute of Health, United States Public Health Service.

The seventeenth annual lecture in the Donald C. Balfour Lectureship in Surgery was given in Convocation on April 5. This lecture is given on the anniversary of the birth of Lord Lister to the students in medicine of the University of Toronto. This year the lecturer was James C. Masson, Professor of Surgery, the Mayo Foundation, University of Minnesota. The subject was "Ovarian tumours" a subject to which Dr. Masson brought his wealth of experience from the years spent as head of the department of gynæcology in the Mayo Clinic before he became Chief of Surgery in that famous institution.

Dr. Masson is one of the trio of University of Toronto men who graduated in 1906 and achieved fame in Rochester, Minnesota. Balfour, Henderson and Masson are names known in the literature of surgery in every civilized country of the world. W. S. Lemon gold medallist in the class of 1905, joined the clinic a few years later than the other three and became head of the department of Diseases of the Chest.

The lectureship founded by Dr. Balfour in 1927 is an evidence of the loyalty of these noted graduates and Dr. Masson was welcomed by a host of friends among the Faculty of Medicine and the medical men of Toronto. His lecture was enthusiastically received by the students and the large audience that gathered in Convocation Hall.

On the evening of March 23, the Section of Pathology of the Toronto Academy of Medicine held its regular meeting. The subject for discussion was, "A symposium on the legal aspects of medical practice". Dr. William J. Deadman, of Hamilton, discussed "The rôle of the pathologist in the solution of crime"; Professor W. L. Robinson of the University of Toronto discussed, "The physician as a witness in court", and Mr. C. L. Snyder, K.C., Deputy Attorney-General of Ontario dis-

cussed "The medical witness from the point of view of the courts".

Discussion of the presentations was opened by Dr. Smirle Lawson, Supervising Coroner for Ontario, followed by Professor Joslyn Rogers, Consultant in Chemistry to the Department of the Attorney-General, Dr. Isaac Erb and others. At the election of officers which followed the program, Dr. W. L. Robinson was elected Chairman and Dr. Vivien Laughlen, Secretary. There was a large attendance at the meeting. Dr. G. F. Laughlen presided.

Dr. T. H. Orton, who graduated in January and is now in the R.C.A.M.C., represents the fifth generation of his family to enter the practice of medicine. His father, Dr. T. H. Orton, practised in Guelph for almost fifty years.

Dr. Evelyn Fleming, who has been on furlough in Canada from India for some time, is to return to India as soon as transportation in the Clipper can be arranged for her. In recognition of her services as head of the Canada hospital at Nasik, near Bombay, a document bearing the gold seal of Toronto was presented to her by Mayor Conboy.

The organization of the newly authorized No. 13 General Hospital, R.C.A.M.C., commanded by Colonel L. A. Carr, M.C., is well under way. The slate of officers is now complete and carries the names of a number of former Hamilton physicians, among whom, in addition to Colonel Carr himself, are, Lieut.-Colonel E. C. Janes, in charge of surgery, Lieut-Colonel T. G. Heaton, in charge of medicine, Major C. H. Jaimet, Major A. J. Blanchard, pathologist, Major McCutcheon and Captain Hazen, formerly of the Hamilton Military Hospital, Captain J. F. Dyer and others. The unit will be mobilized shortly.

Eighteen per cent of Hamilton's physicians are now in uniform with the Armed Forces. M. H. V. CAMERON

Quebec

The March meeting of the Montreal Physiological Society was held at the laboratories of Messrs. Charles E. Frosst and Company. Papers were read by: Eleanor Clarke, Department of Histology, McGill Unviersity, on "The overt and masked manifestations of folliculoid hormones"; and Hebbel Hoff, Department of Physiology, on "The localization of ventricular extra-systoles".

Succeeding the late Dr. B. G. Bourgeois, Dr. Gariepy has been named surgeon-in-chief of Notre Dame Hospital according to an announcement on March 30 by Dr. J. R. Boutin, medical director of the hospital.

Sous la direction du Dr Gaston Lapierre, professeur de pédiatrie à l'Université de Montréal et du René Benoît, chef de service à la Crèche de l'hôpital de la Miséricorde, avec le concours du Dr E. Dubé, professeur de clinique chirurgicale, des Drs Henri Baril et Jean Saucier, professeurs agrégés et des Drs J. Lapointe, L. Coutu, W. Major, A. Léveillé, L. E. Gagnier et A. Martel, une série de leçons sera donnée sur la puériculture et la médecine infantile à l'hôpital Ste-Justine. Ces leçons seront données du 24 au 29 mai. Le programme détaillé sera annoncé plus tard.

Une dépêche nous apprend que le Major Eustache Morin a été promu Lieutenant-colonel. Le Dr Morin était médecin de l'hôpital de l'Enfant-Jésus de Québec. Il est maintenant chef de la section de médecine de l'hôpital militaire No 17, le premier et le seul hôpital canadien-français de l'armée canadienne d'outre-mer.

A l'hôpital Notre-Dame de Montréal, le Conseil médical et le Bureau médical ont réélu les mêmes présidents: les Drs Léon Gérin-Lajoie et Jean Saucier.

Le Dr Aimé Desforges a été élu président du Bureau médical de l'hôpital St-Luc de Montréal.

Le 25 mars dernier la Société de Biologie de Montréal receivait le Dr Hans Selye, professeur d'Histologie à McGill. Il parla de l'action anesthésique de certaines hormones. JEAN SAUCIER

General

At the meeting of the Board of Directors of the **Finney-Howell Research Foundation, Inc.**, 1211 Cathedral Street, Baltimore, Md., the following annual fellowships were awarded:

For the third year: Rose I. Shukoff, M.D., University of Petrograd. To work at the Glasgow Royal Cancer Hospital, Glasgow, Scotland, under Dr. P. R. Peacock. Emilia Vicari, M.D., Ohio State University. To work at the Jackson Memorial Laboratory for Cancer Research, Bar Harbor, Maine, under Dr. C. C. Little.

For the second year: Burroughs Reid Hill, M.S., Tulane University. To work with Dr. Louis Fieser at Harvard University.

New: Nelicia Maier, M.D., Medical School, Paris, France. To work at Yale University Medical School, New Haven, Conn., with Dr. Wm. T. Salter. James Alexander Miller, M.S., University of Wisconsin. To work at the Medical School, University of Wisconsin.

Fellowships carrying an annual stipend of $2,000 are awarded for the period of one year, with the possibility of renewal up to three years, at the annual meeting of the Board of Directors, held the beginning of March. Applications must be made on the blanks furnished by the Secretary, and must be filed in the office of the Foundation *before* January 1 of each year. Fellowships are awarded only for research into the cause or causes and the treatment of cancer.

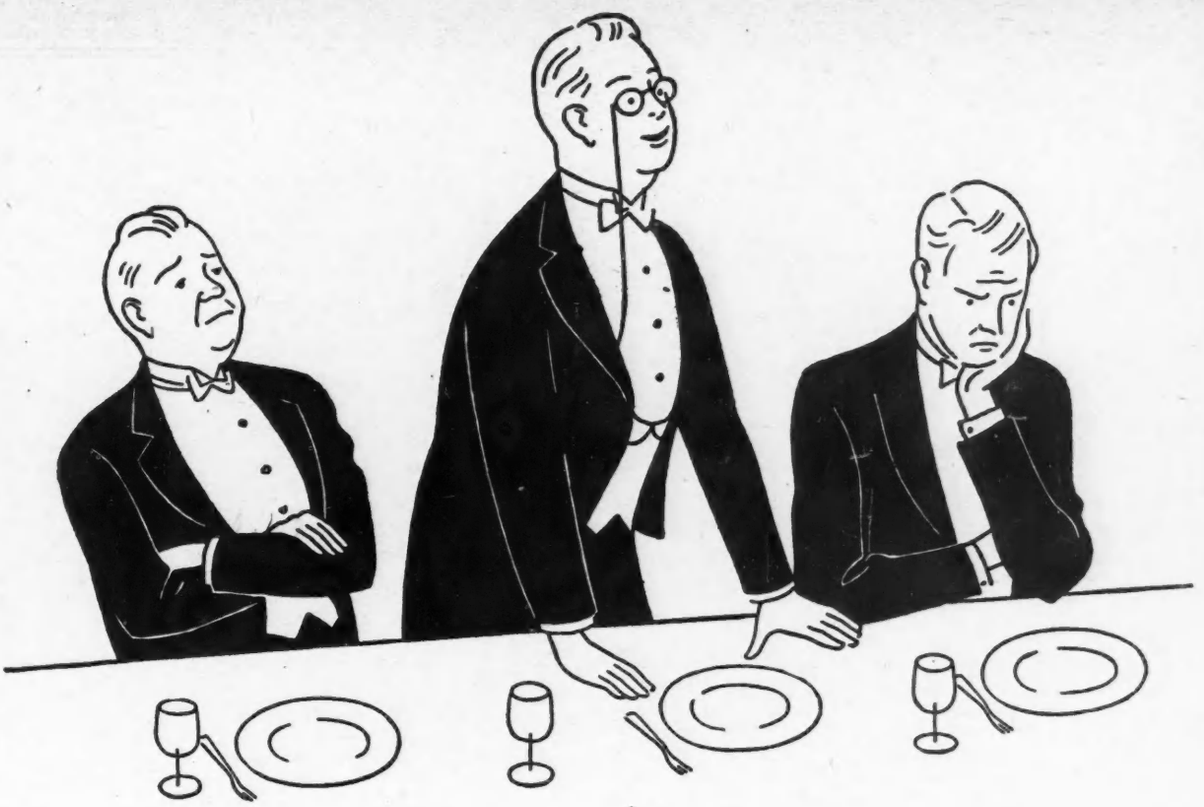
American College of Chest Physicians has cancelled its 1943 annual meeting which was to be held in conjunction with the American Medical Association.

Book Reviews

War Gases. M. B. Jacobs. 180 pp., illust. $3.00. Interscience Publishers, Inc., New York, 1942.

This is a book by a chemist which will have its greatest appeal to chemists. At this time any book which deals practically with the important problems arising in the course of warfare has its place and is welcome. Dr. Jacobs in his book has had the aim of presenting information that will be useful to the gas identification officer, the war gas chemist, the decontamination officer, the health officer, and in some degree also to air-raid wardens and any who may be called upon to deal with the effects of poisonous gases. As might be expected, there is not so much that will be of immediate value to the medical officer, though he can learn much if he has the time to dig for it.

Some forty different gases are described, classified as Lung Irritants, Lachrymators, Toxic Smokes, Labyrinthic Gases. The effects of war gases on materials, foods and water are described, and methods of sampling and analysis are gone into with much detail. Here the non-chemical medical man will probably find himself out of his depth. To him the remarks on decontamination of all objects that may have been exposed to the action of poisonous gases will have special appeal, however, and it is fortunate that the author is of the opinion that for the initial detection of harmful gases sensory methods are best. This relieves the medical officer of a train of woe! He will obtain his chiefest help from special lectures on the more medical aspects of the subject, from



Postprandial distress

Having to listen to a prosy after-dinner oration may be a painful experience, but more real, in the physical sense, is the distress that awaits him who has dined well but none too wisely.

Gourmandism is difficult to cure, as is the habit of hurried dining, and so it becomes a matter of alleviating the gastric distress caused by hyperacidity.

Physicians for many years have found in Cal-Bis-Ma the kind of preparation that will help provide this relief. A palatable powder composed of substances recognized as effective for gastric neutralization, Cal-Bis-Ma may be prescribed with assurance that it will act promptly and safely.

A trial supply will be gladly sent to physicians. Please write to the Dept. of Professional Service.

CAL-BIS-MA

WILLIAM R. WARNER & CO., LTD., 727 King St. West, Toronto, Ontario

articles by recognized authorities to be found in medical journals and from the official brochures issued by the British and Canadian Governments.

A truly valuable book.

The Hospital Care of the Surgical Patient. G. P. Crile and F. L. Shively. 184 pp., illust. $2.50. C. C. Thomas, Springfield, Ill., 1943.

This is a practical and useful review relative to the care of hospital patients and the recognition, diagnosis and treatment of the more common and serious complications which occur pre- and post-operatively. The procedures discussed are based on physiological principles and the rationale of their application has been proved clinically.

On glancing over this book one might get the impression that the sulfonamides were being used too much as a shot gun prescription, but if the dangers of the drug are appreciated and the precautions described are adhered to, the surgeon will avoid the pitfalls which may be associated with its use. The house surgeon can derive an abundance of useful information from it. If he would study it carefully before he starts his internship he would be more self-reliant and be alert in the recognition and instigation of prompt and proper treatment of complications. He would also have a knowledge of what his relationship should be with the attending surgeon, house staff and patients.

The nursing staff would be more efficient if it were familiar with its pages. Not only are there many points relative to the nurse's everyday duties but the routine for the postoperative care of the normal patient and the symptoms of complications are so simply and clearly described that she could understand the rationale of the treatment and be competent to recognize many of the complications and have early treatment instigated.

Acute Injuries of the Head. G. F. Rowbotham. 288 pp., illust. $7.50. Livingstone, Edinburgh; Macmillan, Toronto, 1942.

This book is a presentation of one portion of traumatic surgery. It is designed for the use of the whole profession and is distinctly not a reference book for neurosurgeons. Head injuries are now so numerous, due to industrial and highway accidents, quite apart from war injuries, that it is not possible for all of them to reach the limited number of neurosurgeons who are best prepared to deal with them. General surgeons, and general practitioners who perhaps would prefer to do no surgery, are frequently forced by circumstances to try their hand at saving the life and function of some unfortunate who has been struck down. Mr. Rowbotham's book may be considered to contain the minimum amount of information necessary for the intelligent management of such cases. Such a presentation of the subject cannot escape the charges of dogmatism and lack of comprehensiveness which necessarily accompany brevity, particularly in the field of treatment and in regard to indications for operation. Descriptions and classifications are so clear and easily understood as perhaps to make the problems of this type of surgery appear more simple than they really are. The virtue of the book is that, though brief, it still remains remarkably informative. The illustrations are excellent.

Among monographs this volume should find a valued place. It can safely be recommended, as most surgical publications can not, to both undergraduate students and to the profession in general because it contains in careful form what all may reasonably be expected to know, particularly those who these days are proceeding towards the care of the war wounded.

Familial Nonreaginic Food Allergy. A. F. Coca. 160 pp., illust. $3.00. C. C. Thomas, Springfield, Ill., 1943.

The author's contention is that nearly everybody has symptoms which are due to a newly distinguished type of food allergy which he describes. In this form of allergy the skin does not react to test substances; but the patient has a pulse which tends to be faster than the pulse rate of non-allergics and to swing more widely. Offending foods are recognized by observation of the pulse rate and symptoms are relieved by avoiding these foods. A great variety of symptoms and of ill health is associated by the author with this type of food allergy. The book gives full details of how to apply the writer's methods. It seems unfair to mention, in a brief review, some of the author's most spectacular suggestions.

The reader of this book will be amazed at its audacity, tantalized by its frequent failure to carry complete conviction, irritated by the superficiality of some of its investigations. But he will no doubt want to try out Dr. Coca's ideas on some of the otherwise incurable patients in his practice. The things that this book could do to the practice of medicine, if half of what Dr. Coca says is true, baffle the imagination. And it is definitely plausible, if not entirely credible on the evidence presented. This reviewer expects that this book will be read widely, but trembles to think of the consequences. Another few years' study of these ideas by some sympathetic and adequately equipped group of hospital physicians, seems to be indicated. It would have been better public policy to do this before publishing.

Practical Survey of Chemistry and Metabolism of the Skin. M. Markowitz. 196 pp. $3.50. Blakiston Co., Philadelphia, Pa., 1942.

In this brief volume the author is presenting material to the students and practitioners of medicine as a general survey of fundamental facts necessary for a better understanding of dermatology. The subject matter is divided into four parts. Part I includes chemistry of the skin *per se*. The various organic and inorganic elements, the enzymes, acid-base balance, pigments and absorptively and permeability of the skin are discussed in detail. In Part II hæmatology in health and disease with reference to dermatology is reviewed together with hæmatology of the cerebrospinal fluid.

Blood chemistry is elaborated upon in Part III. The author discusses various dermatoses with altered blood chemistry. Some of his statements are not concurred in by other workers in the field. The statements that increased urea-nitrogen is found in psoriasis and that blood uric acid levels are raised in eczema are open to debate. This chapter also takes up basal metabolism, histamine, the porphyrins and photosensitization, alcaptonuria and ochronosis, and congenital steatorrhœa.

In his final Part IV there is an excellent review of vitamins and avitaminoses as related to dermatology.

This is an excellent study of a vast and difficult subject and well worth while possessing for reference purposes. For students in that field of dermatology the bibliography will aid materially in further pursuit of the subject.

Manual of Dermatology. D. M. Pillsbury *et al.* Military Medical Manuals, National Research Council (U.S.A.). 421 pp., illust. $2.50. Saunders, Philadelphia; McAinsh & Co., Toronto, 1942.

This manual of dermatology is one of a series developed under the auspices of the Division of Medical Services of the National Research Council, to furnish the medical departments of the United States Army and Navy with compact presentations of necessary information in the field of military medicine. Since 20% of all diseases in the armed forces are the object of dermatosyphilological managament this compact manual fills an urgent need. Its objective is to set forth briefly and simply the management of dermatoses encountered in the armed forces. Emphasis has been placed, therefore, on the common skin diseases affecting persons of this age-sex group.

Several chapters are devoted to diagnosis. Those which discuss diagnosis based on distribution and diagnosis of eruptions of commonly involved sites are particularly helpful to the medical officer who is not a dermatosyphilologist. The illustrations are very clear and representative, but combining numerous distribu-

tions of disease on one figure tends to be somewhat confusing.

Chapter 5 on local therapy is one of the best in the book. It is presented in a practical manner and in some detail. Treatment is divided into two types: (1) simplified treatment for the isolated station or small ship and (2) hospital or sick-bay extended treatment. The recommended formulary found in the appendix is also divided on the same basis. One hesitates to criticize even lightly these chapters but, in the reviewer's opinion, a multiplicity of remedies for the same condition tends to confuse the non-dermatologist.

The authors live up to their objective in setting forth briefly and simply the management of cutaneous diseases of high incidence in the armed forces. This manual could well be recommended for use by both the student and civilian practitioner.

Infant and Child in the Culture of Today. A. Gesell *et al.*, 399 pp., illust. $4.00. Harper & Brothers, N.Y., 1943.

In recent years it has become increasingly evident that many physical and mental disorders have their origin in deviations from the normal developmental process in childhood. A thorough understanding of the growth and development of the young child is therefore of fundamental importance in medical practice. The authors, who have had a very extensive experience in studying growth and development in young children at the Yale Clinic of Child Development, present in this book a detailed review of the growth process in infancy and childhood. Detailed summaries are presented of the normal responses of young children, indicating the more important habitual patterns of behaviour, such as sleep, feeding, elimination, as well as social adjustment. Considerable emphasis is placed on the fact that relatively wide variations of the growth process may occur in normal children and that only by making a total appraisal of child growth in terms of motor development, adaptive behaviour, language responses, and personal social reactions can one arrive at an estimate of a child's physical and mental potentialities. In the latter part of the book the various philosophies of child training are presented and contrast is made between the education and training of children in an authoritarian state and a democratic society. The authors also emphasize the relationship between the early years of human growth and such diseases of culture and society as poverty, economic crises, crime, and war. Because of the many detailed development charts as well as the numerous practical suggestions which are made with reference to the commoner behaviour difficulties in infancy this book will be a very valuable aid to the general practitioner and particularly to the pædiatrician.

Mental Health in College. C. C. Fry and E. G. Rostow. 365 pp. $2.00. Commonwealth Fund, N.Y., 1942.

In this book the authors present a summary of their experience in the treatment of mental health problems in college students at Yale University over a period of many years. Psychiatric examination and treatment of students was facilitated through making the psychiatric work an integral part of the Department of the University Health Service and a recognized medical service to the university at large. The main part of the book deals with the reasons why some students found difficulty in adjusting to the college community and emphasizes the fact that these reasons are inherent in the diverse personalities as found in a group of college students. Special chapters are devoted to problems in family relationships, sexual adjustment, and the more serious mental disorders encountered in a group of undergraduate and graduate students. The numerous case studies which are used to illustrate special points of emphasis indicate very clearly that while universities and colleges have as a main objective the development of intellectual maturity in their students very little attention is paid to the development of emotional maturity. As a result of this many brilliant careers are ruined and many university graduates are badly adjusted, inefficient at their work, and unable to assume the responsibilities for which they have been trained. This book is an important contribution not only to the Mental Hygiene of Adolescence but also to the whole field of University Education.

Psychosomatic Medicine—The Clinical Application of Psychopathology to General Medical Problems. E. Weiss and O. S. English. 687 pp. $9.25. W. B. Saunders, Philadelphia; McAinsh, Toronto, 1943.

Professors Weiss and English are to be congratulated for providing a textbook that bridges the gap between uncomplicated organic disease and texts dealing with the more profound mental disorders. It is the first edition of a type of textbook that will in time be placed in the physician's library side by side with the standard volumes of medicine and surgery. It will require and will repay the same careful study as these older works. The viewpoints it presents will come into perspective slowly. The application of the diagnostic and therapeutic procedures described will become efficient only with practice.

There are several criticisms the reviewer would offer, chiefly because they should be made, although not in any way to detract from the value of this "pioneer edition". The authors are apt to antagonize the reader by the references to the mistakes made by physicians. These criticisms are quite just; nevertheless, established texts on a subject other than psychiatry, are usually objective in that they deal with diseases of the patient and seldom with the physician. The authors have in many places recognized that there is much of value in addition to the teachings of Freud, but in such a comprehensive text dealing with the problems of general practitioners, malnutrition deserves more attention. Similarly, with regard to special methods one regrets that a clear description of the technique of and indications for, narco-hypnosis has been overlooked. Shock therapy, admittedly only a stage in the evolution of psychosomatic therapy, is, nevertheless, too important in cases of the "menopausal type" to be found under the heading of "suggestion from treatment".

The book is recommended to all practitioners of medicine as well as those interested in the specialties. This is the reviewer's opinion since it is the first book that has come to his attention that deals with emotional problems of clinical cases in such a way that any physician, really interested, but without psychiatric training, will understand.

Mental Illness: A Guide for the Family. E. M. Stern. 134 pp. $1.00. Commonwealth Fund, N.Y., 1942.

This well-written little book explains how to behave and what to do when a member of the family becomes mentally ill. The information in it is especially valuable for the laity and does much to overcome the hesitancy, bewilderment, and confusion which so often is aroused in the patient's immediate relatives when he or she becomes mentally ill. It is written in simple language and its content is remarkably true as to what takes place in a mental hospital.

To one who has lived and worked in mental institutions, I can only say that this volume gives a very clear picture of how patients are treated and relatives handled. To the general physician, the minister, social workers, nurses, and receptionists, the book makes easy and profitable reading.

The Infectious Diseases of Domestic Animals. W. A. Hagan. 665 pp., illust. $6.00. Comstock Publishing Co., 124 Roberts Place, Ithaca, N.Y., 1943.

The Infectious Diseases of Domestic Animals is the outcome of the author's course on bacteriology and immunology at the Cornell Veterinary School. It is not, however, a textbook of bacteriology in the usual sense; not only does it include the fungi, protozoa and

viruses within its scope, but it deals with the diseases, with special reference to the causative organisms, rather than the organisms themselves. Where these organisms are transmissible to man, the human condition also is discussed and the method of transmission considered.

The volume is divided into 44 chapters and five parts. The first part considers mechanism of infection and resistance. Part two consists in an account of the pathogenic bacteria and is the largest portion of the book. The third part deals with the spirochætes, rickettsiæ and the like, and the fourth with the pathogenic fungi. Parts five and six respectively discuss the pathogenic protozoa and the viruses. Much of the contents is of interest to medical men and to public health workers. Its scope is very considerable and consequently its treatment of individual diseases is necessarily brief, but the author has been successful in giving an adequate picture of each.

Health, Sex and Birth Control. P. E. Ryberg. 208 pp., illust. $2.00. Anchor Press, Toronto, 1943.

There is a constant need for clear, sound guidance in matters of sex and birth control. Sex education is only very slowly coming to be recognized as necessary; indeed according to Dr. Ryberg "it is shamefully neglected in the curriculum of schools and universities".

His book deals very simply with the anatomy and physiology of the organs of reproduction. There are chapters also on the problems of sexual behaviour, and on venereal disease. The second part of the book is devoted to guidance in respect to questions asked by the newly married, and birth control.

We can freely recommend the book as frank, authoritative and sensibly written. It gives in reliable form information which some medical men even have never been formally taught, and will therefore be of considerable value.

Essentials of Proctology. H. E. Bacon. 345 pp., illust. $4.25. Lippincott, Montreal, 1943.

This most useful book is written by the author of an encyclopædic volume on Diseases of Anus, Rectum and Sigmoid Colon which was published in 1938 and a second edition issued 17 months later. Reading the small work will satisfy the needs of students and practitioners and even of surgeons and clinicians who may still use the larger work for reference. A unique feature is an index of signs and symptoms printed on the inside of the front cover and the flyleaf. This in itself is a short course in proctology. The text is written in most pleasing style and there are 168 well selected illustrations. The reviewer feels that this book should be "required reading" for senior students, clinicians in surgery and general practitioners of medicine.

Fundamentals of Immunology. W. C. Boyd. 446 pp., illust. $5.50. Interscience Publishers, N.Y., 1943.

This is a book written by a biochemist and therefore tends to stress the fundamental mechanisms of the reactions, their theoretical foundations, and the basic principles involved in the study of immunology. It covers not only degrees of resistance to disease but a variety of other subjects in which similar methods of study are used, such as blood-grouping, forensic precipitin tests, and laboratory and clinical techniques. In discussing the mechanism of antibody-antigen reactions the author gives a detailed account of this controversial subject. In it he is "able to say for once, all that came to his mind in this connection" without being bound by the rigid restrictions of space which limits a worker in expressing his point of view in scientific periodicals. This detailed account is valuable and together with the chapter on blood-groups is probably the best part of a very useful book. The presentation of the material throughout is direct and straightforward without "the historical method of approach, so dear to writers on immunology". The reviewer can recommend the work as a reliable presentation of all the pertinent facts in a manner easy to grasp by the general medical reader and also in sufficient scope to include the research worker and to bring out the challenge of the many unsolved problems of immunology.

Treatment of Fractures. G. A. Caldwell. 303 pp., illust. $5.00. Hoeber, New York, 1943.

This constitutes one more work on the subject of fractures, but it fulfils a definite place, in that the author has covered the ground in a sound and simple manner within the scope of three hundred pages. The author has dealt in systematic manner with the emergency and transport problems, the use of sulfonamides in the compound cases. Under general fractures he has given one or two proved methods, emphasizing as much as possible the conservative approach. Instead of x-rays, line drawings have been substituted, which is an excellent system for the beginner.

The reviewer feels that this work represents an excellent text for the medical student, intern and general practitioner. It will not however contain sufficient detail for the specialist.

BOOKS RECEIVED

Public Health Statistics. M. F. Hall. 408 pp. $5.50. P. B. Hoeber, New York, 1942.

Medical Bulletin of University of Cincinnati. Vol. 9. Extra-Mural Teaching of Preventive Medicine and Public Health. A. Korach. 144 pp. University of Cincinnati, Eden and Bethseda Ave., Cincinnati, Ohio, 1942.

Modern Treatment in General Practice Year Book 1942. Edited by C. P. G. Wakeley. 300 pp., illust. $3.75. Medical Press & Circular, London; Macmillan, Toronto, 1942.

Revelation of Childbirth. G. D. Read. 262 pp. $6.50. William Heinemann, London; Macmillan, Toronto, 1942.

Surgery of the Nose and Throat. Edited by J. D. Kiernan. 701 pp., illust. $15.00. Nelson & Sons, N.Y., 1942.

The Answer is . . . Your Nerves. A. S. Jackson. 197 pp., illust. $2.75. Kilgore Printing Company, Madison, Wis., 1942.

The Anatomy of the Nervous System. S. W. Ranson. 7th ed., 520 pp., illust. $7.50. W. B. Saunders, Philadelphia; McAinsh & Co., Toronto, 1943.

Understand Your Ulcer. B. B. Crohn. Illust., 199 pp. $3.25. Sheridan House, N.Y. Geo. J. McLeod Ltd., King Street West, Toronto, 1942.

Clinics. Edited by G. M. Piersol. Vol. 1, No. 4. 261 pp., illust. $3.00. J. B. Lippincott, Montreal, 1942.

The 1942 Year Book of Industrial and Orthopædic Surgery. Edited by C. F. Painter. 424 pp., illust. $3.00. Year Book Publishers, Chicago, Ill., 1942.

Manual of Oxygen Therapy Techniques. A. H. Andrews. 191 pp., illust. $1.75. Year Book Publishers, Chicago, Ill., 1943.

The Sight Saver. C. J. Gerling. 202 pp. $2.00. Harvest House, N.Y., 1943.

An X-ray Atlas of Silicosis. A. J. Amor. 206 pp., illust. $9.00. John Wright & Sons, Bristol; Macmillan, Toronto, 1941.

Outline of Psychiatric Case-study. P. W. Preu. 2nd ed., 279 pp. $2.75. Paul B. Hoeber, New York, 1943.

Medical Progress Annual. Vol. III, 1942. Edited by R. N. Nye. 678 pp. $5.00. Thomas, Springfield, Ill., 1942.